

HOSPITAL ASSOCIATION OF SOUTH AFRICA

Private Hospital Review, 2009



PRIVATE HOSPITAL REVIEW, 2009

TABLE OF CONTENTS

CHAPTER 1:	NATIONAL HEALTH INSURANCE IN SA	PG 3
CHAPTER 2:	HOSPITAL ADMISSION RATES IN SA	PG 20
CHAPTER 3:	PRIVATE HOSPITAL CAPACITY	PG 41
CHAPTER 4:	BENEFIT DESIGN	PG 56
CHAPTER 5:	NATIONAL HEALTH REFERENCE PRICE LIST	PG 70
CHAPTER 6:	PARTNERING SECTORS	PG 76

CHAPTER 1

National Health Insurance in South Africa

Authored by Melanie Da Costa

1. Preamble

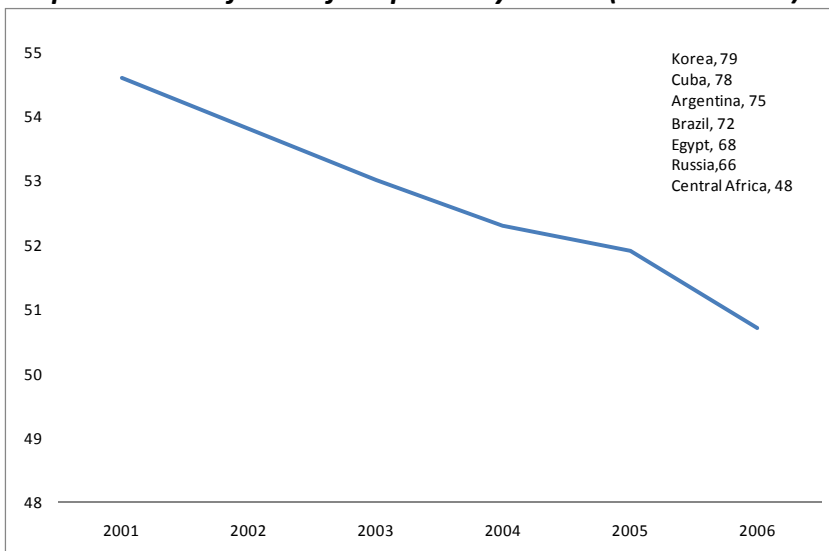
The Hospital Association of South Africa (HASA) endorses the principle of universal access to quality healthcare for all South Africans. While most, if not all, stakeholders support the objective of a National Health Insurance (NHI) system, approaches as to how to implement the system differ. The fundamental question remains how to balance financial risk, the provision of healthcare services and funding in a middle-income country such as South Africa. This chapter is aimed at stimulating debate and does not represent a formal position on the topic of NHI by HASA or any of its members.

2. Introduction

Universal healthcare is a broad concept which refers to health coverage that extends to all eligible residents of a country. The application of universal healthcare programmes varies in structure and mechanisms for funding. South Africa currently offers universal health cover through its national health service wherein all residents have access to the healthcare services provided by the public sector. However, the services offered are severely lacking with regard to benefit package, accessibility and quality; leaving the majority of South Africans who rely on these services at a disadvantage.

Relative to other developing markets, South Africa's low life expectancy provides an indication of poor performance within South Africa's public health system. Notwithstanding a significantly more developed economy and health system relative to Central African countries, South Africa's life expectancy is on par.

Graph 1: South African life expectancy trends (source: WHO)



An assessment of the healthcare system by the South African Human Rights Commission in 2007 recorded great concern about the levels of access to healthcare services and the quality of care provided in the public healthcare system, despite existing policy and legislation governing this sector.¹

The goal of the current round of health reform must be to achieve significant improvements - as quickly as possible - in the areas of accessibility, the depth and breadth of healthcare services package, as well as the quality of care provided.

NHI has been proposed as a potential solution to extend quality healthcare to all. The NHI debate is not new in the South African political environment and dates back to the early 1990s. NHI is essentially a compulsory medical scheme for all working people. Under this model, free healthcare for all citizens would be funded through compulsory contributions from all employed South Africans, as well as via additional tax funding. NHI differs from a Social Health Insurance (SHI) system wherein all working people contribute to a fund to provide healthcare for other employed members and their families, rather than the population at large.

As demand for health services continues to exceed supply, funding constraints remain one of the biggest challenges to providing universal access to healthcare in all countries including South Africa. Under an NHI model, private health insurance remains viable as corporates and individuals pay for additional top-up insurance in order to be able to choose their physician and health facility and access more comprehensive benefits.

3. Building Blocks for Universal Health Coverage

This chapter reviews international health systems² and basic building blocks for universal health coverage including:

- Single versus two-tier healthcare systems
 - Dedicated health tax
 - Co-payments
 - Private health insurance
- Single versus multiple funders
 - Pooling of funds
 - Purchasing of health services
- Level of benefits covered under universal care
- Provision of health services
- Consumer choice
- Quality and safety of care
- Time frame to establishing NHI

¹ South African Human Rights Commission (2007) Public inquiry into the right to have access to health care services

² Countries reviewed include Ghana, Nigeria, Korea, Japan, Taiwan, India, Netherlands, United Kingdom, Norway, Belgium, France, Mexico, Brazil, Cuba, Argentina, Canada, Sweden, Denmark, China, Ireland

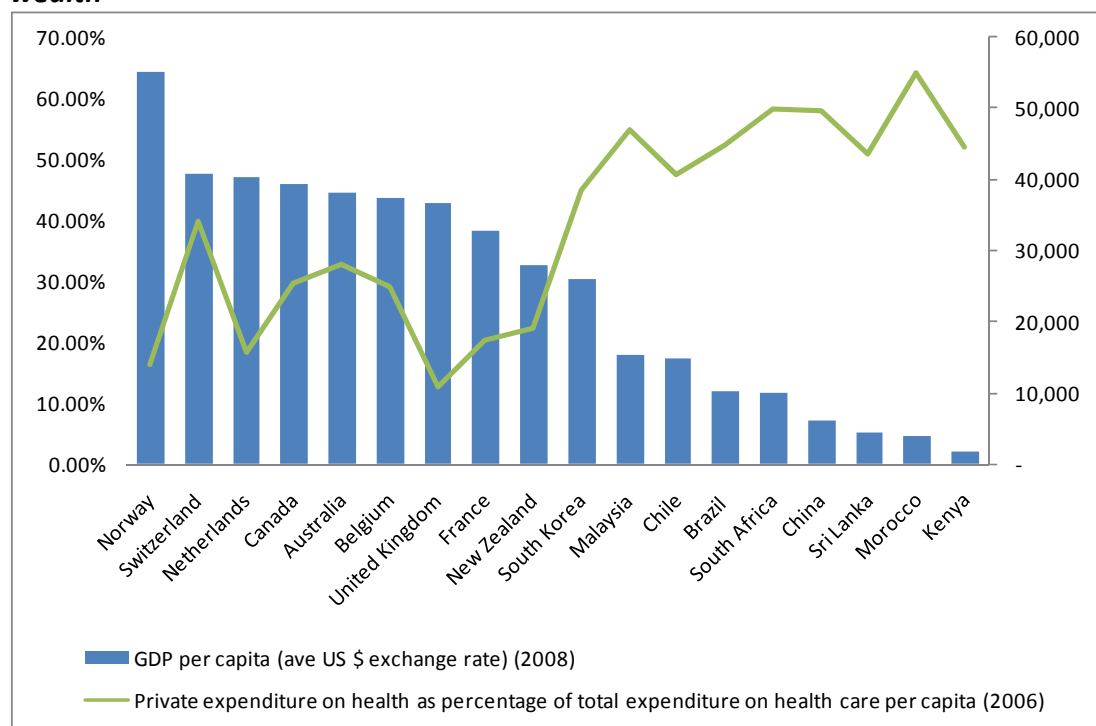
3.1 Single Versus Two-Tier Systems:

The public financing requirements for comprehensive medical benefits under an NHI system are onerous. Typically, this has only been achieved in countries with high per capita GDPs and high formal employment rates. Spreading the financial burden over the largest possible employment base ensures sustainability as the funding requirements do not pose too high a burden on the fiscus or individual.

Where it is not possible for the NHI to offer comprehensive benefits, a two-tier system naturally emerges. A two-tier healthcare system is based on a scenario in which a public healthcare system exists, but where a private system operates in parallel competition. The private system includes private insurance and private provision.

The graph below reflects the relationship between a country's wealth, as reflected by per capita GDP, and the role of private health coverage.³ The lower the GDP per capita, the more difficult it is for countries to achieve universality of coverage through public expenditure. Private expenditure on healthcare then gains predominance.

Graph 2: Private expenditure as a % of total health expenditure relative to a country's wealth



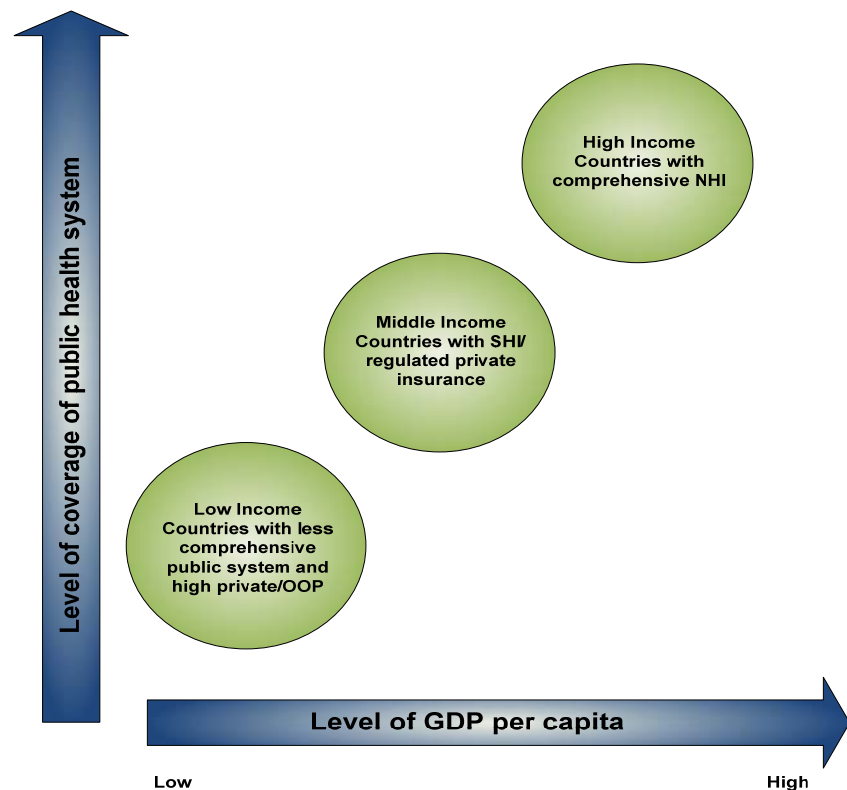
Source: CIA and WHO

³ Private expenditure on health is the sum of outlays for health by private entities such as commercial or mutual health insurance providers, non-profit institutions serving households, resident corporations and quasi-corporations not controlled by government with a health services delivery or financing, and direct household out-of-pocket payments.

Most developing countries have high levels of unemployment and as a result, low levels of absolute spend on public health: “Their ability to generate tax revenue or fund social insurance systems to provide broad financial protection for health care is limited.”⁴ Over 40% of South Africans live below the poverty line.⁵

The transition to a single tier system is largely subject to the requirement of a strong economy, low levels of unemployment and a high income per capita. Low and medium income countries utilise a number of mechanisms to bridge this gap.

Diagram 1: Level of public health expenditure relative to a countries wealth

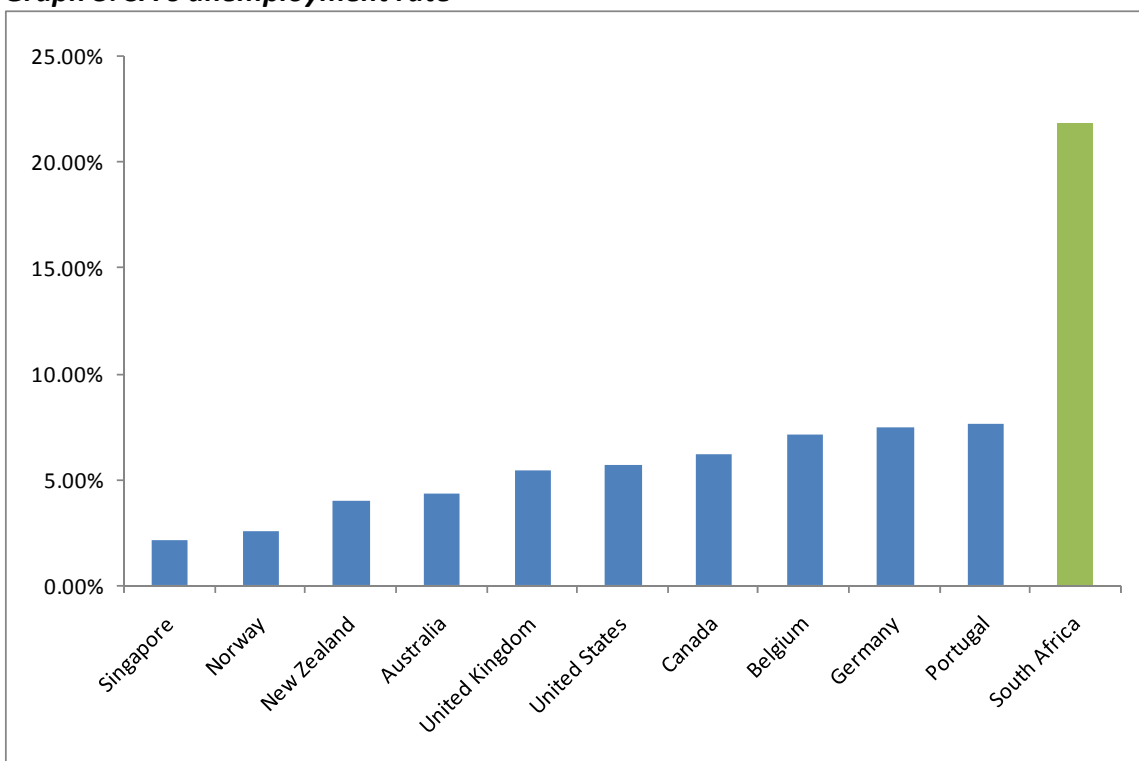


⁴World Health Organization (2004). *Private Health Insurance: Implication for developing countries*. Discussion Paper, Number 3

⁵ Development Indicators (2008). The Presidency of the Republic of South Africa. pp 26

The graph below reflects South Africa's official unemployment rate:

Graph 3: SA's unemployment rate



Source: OECD and StatsSA Labour Force Survey

South Africa's financial limitations are significantly higher than in these developed countries who themselves are struggling to fund universal health.

Table 1: South Africa's GDP per capita is a fraction of countries that have achieved universal public health cover

	<i>Nominal GDP per capita (US\$)*</i>	<i>SA GDP per capita as a ratio of each country's</i>	<i>Government expenditure on Health (USD)#</i>	<i>Total expenditure on health (USD)</i>
South Africa	\$5,906	100%	\$191	\$456
Canada	\$43,485	14%	\$2754	\$3912
France	\$41,511	14%	\$3233	\$4056
United Kingdom	\$45,575	13%	\$2939	\$3361

Source: *IMF, 2007; #WHO 2006

The most effective mechanism for improving financial equity is to increase public sector financial allocations. This can only be achieved by allocating increased tax revenues, either from the current general tax revenues, and/or from dedicated payroll taxes.

The rate at which increased financial allocation to the public healthcare financing system can be achieved is linked to the macro-economy and the government's fiscal policy framework. The total size of the government budget, other fiscal priorities, plus the employment level in the economy dictate the rate and scale of increased financial allocations to an NHI or other publicly financed healthcare system.

The amount of additional finance required to fund an efficient NHI will depend on the scope of benefits it provides and the number of people it covers.

The lower the benefits or population covered, the smaller the additional finance required. Providing comprehensive benefits across a wide membership base would be prohibitively expensive in the South African context in the medium term. The solution therefore lies in either providing a more limited benefit package or using tools such as rationing and waiting lists to limit access.

3.1.1 Dedicated health tax

Health systems face tough competition for public funds from other valuable social programmes. Even in developed countries with significantly wealthier economies, the demands of healthcare financing have become burdensome. For example, France funds its health system with an onerous tax of 18% of payroll.⁶

An extrapolation of private sector benefits to the entire South African population (notwithstanding the shortages of human resource and hospital capacity), based on 2007 prices, indicates a cost of approximately R325bn⁷ per annum, or approximately 50% of the projected national budget for 2009/10.

Constraints to affordability are further highlighted when one considers that even if the cost of healthcare delivery was significantly cheaper - say 50% if benefits were to be contained to a minimum basket only - the public health budget would need to increase to R160bn/year. This is approximately equivalent to the entire personal income tax revenue of R170bn⁸ generated from March 2007 to Feb 2008.

If healthcare was to gain a substantial enough reallocation of existing budgetary funding, consideration would need to be given to the impact on the funding of other national imperatives such as infrastructure development, education, housing, water and sanitation. Such a re-allocation would have to take into account the effect of reduced funding to these areas and would thus need to occur gradually via a process that would take place over a number of years.

Alternatively, new taxes could be raised to fund the NHI. Many countries have increased direct health taxes on employers, employees or both. The local debate has centred on raising an employee health tax. Of concern however is the low number of personal taxpayers in South Africa. According to the South African Revenue Services' Annual Report for 2007/8, there are 5.2 million registered individual taxpayers.

⁶ Rodwin V, (2003). *"The Health Care System under French National Health Insurance: Lessons for Health Reform in the United States.* American Journal of Public Health 93, no. 1

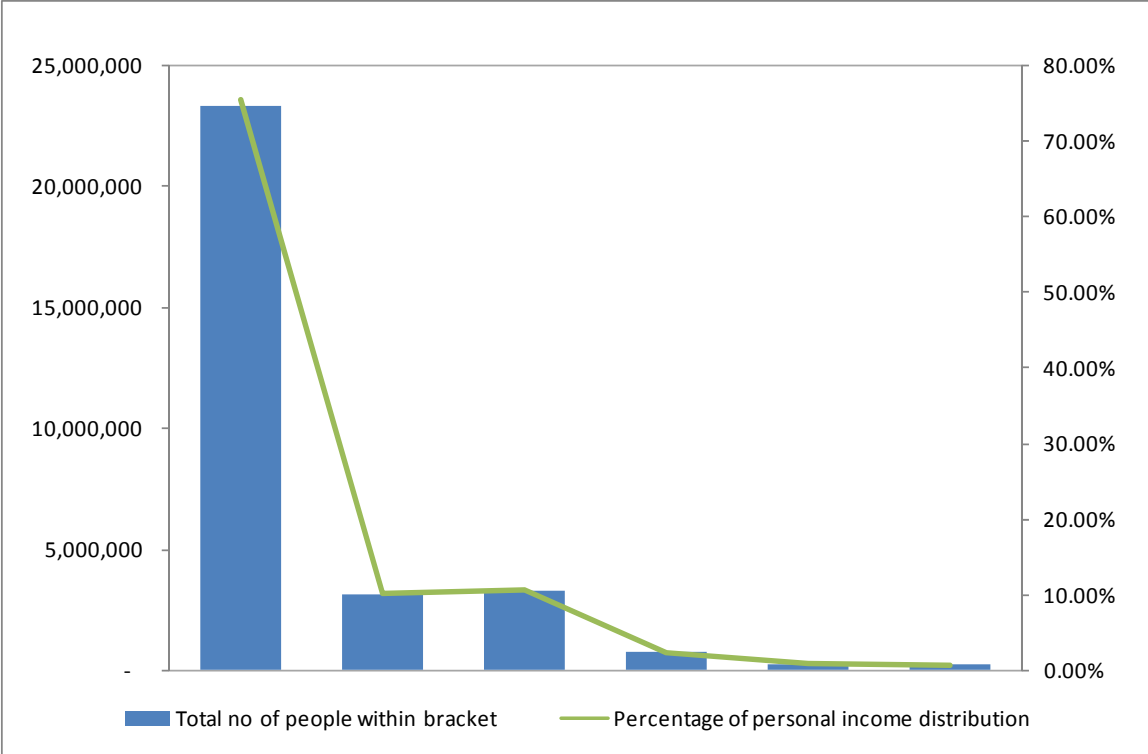
⁷ Discovery Holdings 2009 Interim Results

⁸ South African Revenue Service Annual Report 2007 and 2008

With a population size closer to 48 million, the funding burden at an individual level would be extremely onerous.

It does not seem likely that the existing tax system would support a large additional tax burden. It is therefore probable that any increased tax burden would fall on the higher income groups, which by virtue of South Africa’s skewed income distribution, are in the vast minority as reflected in the graph below.

Graph 4: 15% of adults earn above R100 000 per annum



Source: Unisa bureau of market research, May 2008

If the NHI system relies too heavily on taxes paid by a small group of people, the funding of the system would be extremely sensitive to any movements in the size of that population. This could potentially compromise the sustainability and stability of an NHI system.

3.1.2 Co-payments

When public finance is insufficient to satisfy the needs and desires of citizens, then health spend is paid privately through either private insurance or out-of-pocket spend at the point of delivery.

“Out-of-pocket spending on health services is the most common form of health financing in developing countries and represents a significant financial burden for households.”

Table 2: Percentage of medical expenditures paid out of pocket, 2002

Country	Percent paid out of Pocket*
Bangladesh	64
Cameroon	69
Cote d' Ivoire	73
Cyprus	57
Chile ⁹	59
Democratic Republic of Congo	70
Ecuador	57
Egypt	58
Georgia	80
Ghana	59
Guinea	84
India	78
Indonesia	48
Kenya	45
Malaysia	50
Nigeria	67
Pakistan	65
Philippines	47
Sri Lanka	49
United Republic of Tanzania	38
Venezuela	46
Vietnam	62

Source: World Health Organisation, *The World Health Report 2005: Make Every Mother and Child Count* (Geneva: WHO Press, 2005)

*Includes out-of-pocket payment for people covered by both public and private insurance

Even though co-payments or user fees have been shown to be effective in managing utilisation levels, at lower socio economic levels, they tend to decrease access to both necessary and discretionary care as people choose to forego essential care. Although South African policy makers would prefer not to apply user fees, this will be dependent on economic realities.

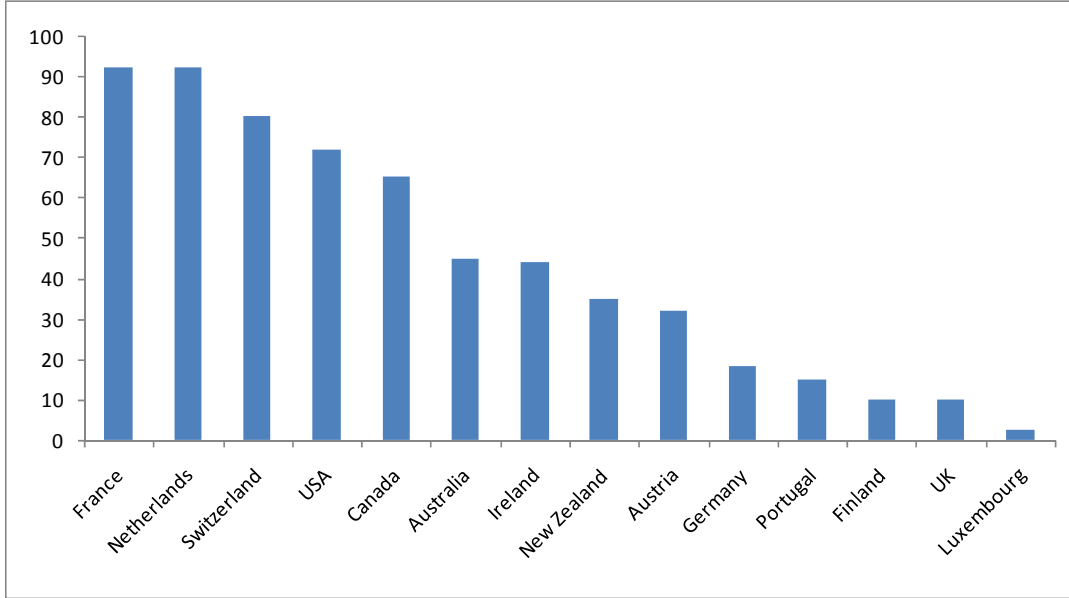
3.1.3 Private health insurance

The determining factors for securing health provision outside of a public delivery system include timeous access to quality care and the level of benefits provided. "Even in the most well-known government health care systems, private insurance, especially that provided by employers, plays a significant and, in many cases growing role".¹⁰ Increased private health insurance is simply a response to population preferences for increased and better care.

⁹ Unger JP et al. (2008).Chile's neoliberal health reform: an assessment and a critique. PLoS Medicine. April

¹⁰ Jeffery D. Munn and Lynn Wozniac. Single-Payer Health Care Systems: The role and responsibilities of the public and private sectors. Benefits Quarterly, Third Quarter 2007

Graph 5: Prevalence of private health insurance

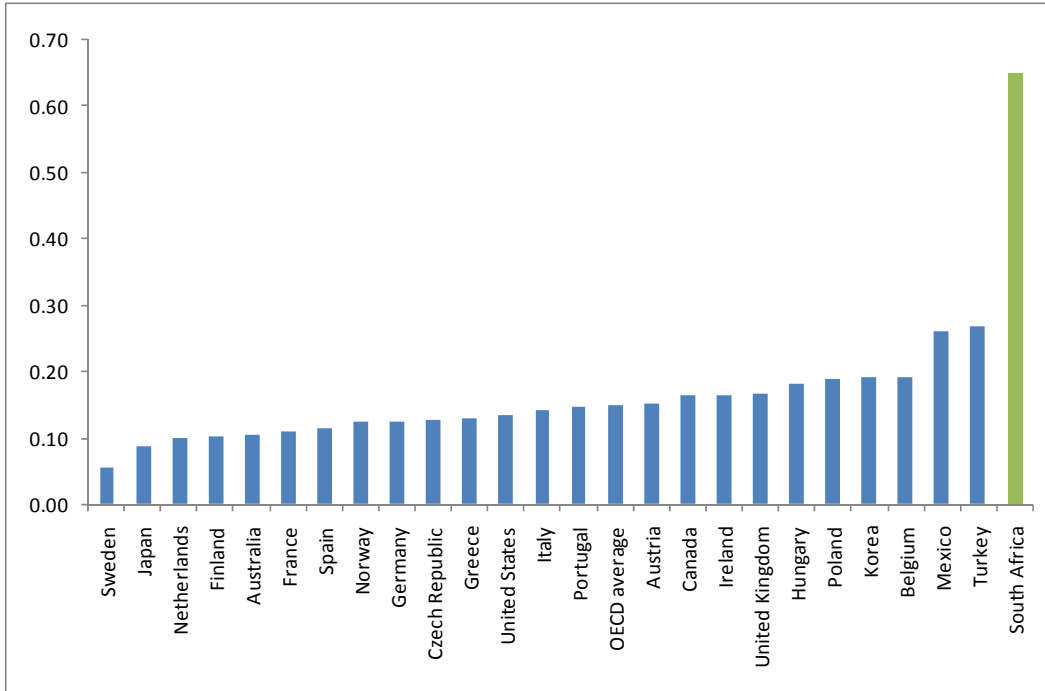


Source: OECD, *Private Health Insurance 2004*

Many of the countries offering NHI use private insurance as a minimum to fund the cost sharing amounts ie. user fees. Depending on the trade-off decision between comprehensive benefits and comprehensive access, private health insurance is either substitutive (alternate) or supplementary (top-up cover). “International experience shows that private health insurance is significant in countries with widely different income levels and health system structures.”¹¹ As reflected in the graph below, South Africa has very large income inequalities. As a result, the ability to raise the necessary funding for comprehensive health benefits is constrained.

¹¹ World health organisation (2004), Discussion paper number 3: *Private health insurance: implications for developing countries*

Graph 6: SA has disproportionately high-income inequalities



Source: OECD and World Bank

Global precedent supports the constitutional right to access healthcare. For example, the Supreme Court of Canada ruled in 2005 that individuals of Quebec have the right to obtain private health insurance for services already available under the public healthcare system. The Supreme Court of Canada ruled in *Chaoulli v. Quebec* that "the prohibition on obtaining private health insurance, while it might be constitutional in circumstances where health care services are reasonable as to both quality and timeliness, is not constitutional where the public system fails to deliver reasonable services."¹² The appellant contended that waiting times in Quebec violated a right to life and security in the Quebec Charter of Human Rights and Freedoms.

The State must take reasonable measures within its available resources to achieve the progressive realisation of the right of access to healthcare, and must not engage in retrogressive measures which undermine existing access to healthcare.

3.2 Single Versus Multiple Funders:

3.2.1 Pooling of funds

An NHI system should attempt to ensure that the least degree of risk fragmentation is present in the pooling arrangement. This raises the question of whether a single or multiple funder arrangement should be allowed.

The single funder model clearly has advantages in terms of:

- Collection of contributions (via SARS);

¹² [Supreme Court of Canada News Release](#)" 2005-08-04

- Less duplication of benefit options; and
- Lower administration fees.

However, the multiple funder model introduces competition to the markets and creates a vehicle for value added benefits. Critical success factors for the implementation of multiple funders include the need for a risk equalisation mechanism and mandatory membership to be in place. Risk equalisation is implemented via a virtual fund which ensures that higher risk profile schemes are compensated by financial transfers from lower risk profile schemes.

3.2.2 Purchasing health services

Health funds may be administered by either a single administrator or multiple and competing administrators.

There appear to be varying models of single/multiple administrator systems in operation. The majority of countries are multiple administrator markets, notwithstanding single risk pools.

There does not appear to be a strong argument for either method yielding better results than the other.¹³ It appears that the primary rationale raised by South Africa policy makers in favour of a single funder environment is the cost of medical scheme administration. The average cost of administration (including managed healthcare and broker fees) for the South African medical scheme industry was 13.6% of contributions in 2007.

An analysis of OECD countries from 1990-1999 showed that the cost of administration in insurance-based systems was 4.2% of total health expenditure.¹⁴ Additional research is required to ensure that administration fees are compared on an equivalent basis. With increased standardisation and the use of electronic claims, one can expect the improved operational efficiency to drive down administrative costs.

Disbursement of NHI funds to multiple administrators requires appropriate risk adjustments to ensure that funds and providers are not penalised for having older and/or sicker patients. The full scope of risk management activities regarding utilisation management, case-mix adjustments, price levels and general cost containment should be carefully considered to ensure that both the affordability of care and appropriate levels of access and services can be maintained in a sustainable way. These measures include, for example, formal evaluation of new technologies, managed care and disease management programmes, cost sharing and effective negotiation.

¹³ RM Rosa and IC Alberto. Universal healthcare for Colombians after Law 100: challenges and opportunities. Health Policy 68 :129-142

¹⁴ Carrin G and Hanvoravongchai P. 2003. Provider payment and patient charges as policy tools for cost containment: How successful are they in high-income countries? Human Resource for Health. BioMed Central

An optimal structure should also take into account the specific South African context. Local experience for example, has shown that competing bodies yield better operational performance than centrally controlled funds.

A simple illustration of the relative efficiencies can be seen in the administration of the average medical scheme versus the Road Accident Fund (RAF) and Commission for Occupational Injuries and Diseases (COID). In the case of the latter, it can take up to a factor of ten times longer to administer payment for a service rendered. An inefficiently administered fund places significant pressure on the sustainability of a health system if service providers are forced out of business due to working capital constraints. A correction of administration fee levels across multiple funds could potentially yield a better outcome than a structural change in the health market, thereby creating a single funder market. Furthermore, moving the health system towards NHI would entail significant changes to health delivery from a defined benefit package and purchaser/provider split, both of which require significant expertise in administration, contracting and purchasing. At present, this skill exists in the medical aid environment.

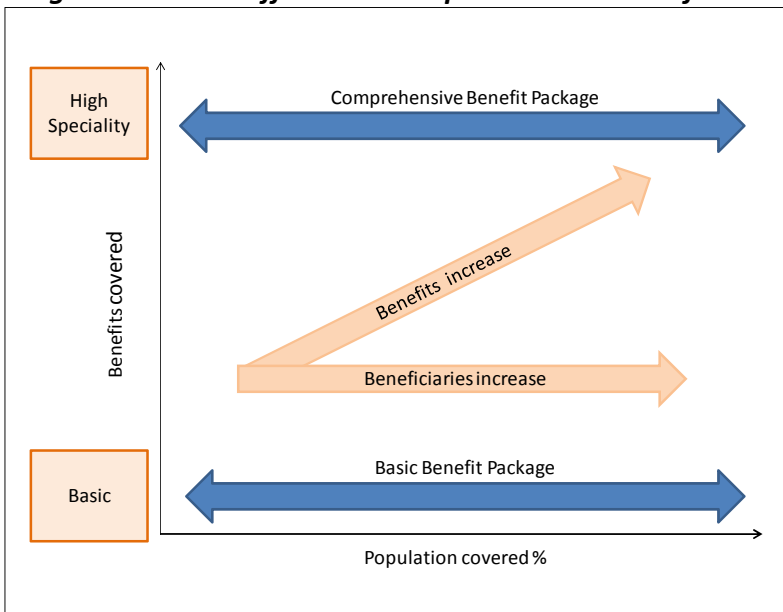
3.3 Level of Benefits Covered Under Universal Care:

Of the countries analysed that offer universal insurance, only developed countries or developing countries with high levels of formal employment (Taiwan and Korea) offer comprehensive medical benefits universally.¹⁵

In environments with funding resource constraints, the trade-off is between either offering a more comprehensive benefit package to fewer people or alternatively, a less comprehensive benefit package to everyone, as reflected in the illustration below.

¹⁵ Does Universal Health Insurance Make Health Care Unaffordable? Lessons from Taiwan. Jui-Fen Rachel Lue and William C. Hsiao. Health Affairs - Volume 22, Volume 3. 2003

Diagram 2: Trade-off between depth and breadth of coverage



A more comprehensive benefit package is always desirable, but would require significantly more funding than the current national health system in South Africa.

In considering the debate between the depth versus breadth of coverage, it is also important to give thought to the impact on all stakeholders, including employers. Healthcare benefit packages play an important role in helping employers attract and retain skilled staff. This is particularly the case in developing countries. In India and China, for example, a scarcity of skills has meant businesses have had to innovate in order to ensure that they attract and retain globally competitive skills and foreign direct investment.¹⁶

A system which offers less comprehensive benefits would require supplementary or substitutive insurance in order to remain attractive to employees.

If, for example, the benefit package was comprehensive but only made available at public facilities to keep costs artificially low, then substitutive insurance should be allowed to maintain voluntary access to the level of care desired. If, on the other hand, access to cover is wide but provides a low benefit package, supplementary insurance should be allowed to provide cover for the additional benefits required.

3.4 Provision of Health Services:

The majority of international universal health systems use a combination of both public and private healthcare providers to deliver services to the population.

South Africa's public health service is referred to as an "internal market" or "supplier driven system". In such a structure, the government is both the provider of health services as well

¹⁶ Munn JD and Wozniac L (2007). Single-Payer Health Care Systems: The role and responsibilities of the public and private sectors. *Benefits Quarterly*, Third Quarter 2007

as the funder. However, a payer-provider split would have some clear advantages over direct service provision by the funder.

It is not whether a health facility is publicly or privately owned that determines health provider performance, but rather the nature of the incentives that influence the performance of providers and the quality of management and oversight.

Contracts drawn up between NHI purchasers and providers should include a clear specification as to how the agreed service would operate, what it would provide and how it would be monitored. This would, in theory, free decision making from provider influence and should allow for responsive priority setting. A critical factor in this model requires that fees be set at levels that would allow for sustainability of the provider industry.

Capacity constraints and organisational issues, especially the availability of human and physical resources, will continue to place limits on the expansion of coverage unless these issues are addressed. The complexity of running public health facilities will increase dramatically as they compete with the private sector for NHI clients and require more efficient billing and revenue collection.

In 2008, the Development Bank of South Africa (DBSA) estimated that there is a shortage of 80,000 health personnel in South Africa in the public sector alone. It was further estimated that there has been a capital backlog in the maintenance of public health infrastructure to the value of approximately R26bn over the last 7 years.

In other developing markets, due to public resource scarcity, there is preponderance of private health services and facilities in urban areas with government's efforts focused on the rural areas. For example in Korea, tax incentives are used to encourage the development of private hospitals and clinics in remote rural areas. In Brazil the Unified Health System (SUS) purchases 44% of hospital services from the private sector.¹⁷

Guaranteed access to healthcare for all citizens can only be achieved by growing and improving all sectors of healthcare delivery.

3.5 Consumer Choice:

Gatekeeper models are used in various jurisdictions as a means of containing cost. This is often achieved by using an allocated primary care physician practice. Cost containment is attained through good primary healthcare and ensuring that patients access health services at the correct level.

The majority of countries reviewed offer freedom of choice: be it in the selection of the healthcare provider or with regard to the provider's clinical freedom. Even in countries with historically more restrictive environments such as the UK, the selection of GP practice is an

¹⁷ Instituto Brasileiro de Geografia e Estatística (Brazilian census bureau).

individual choice. The UK Department of Health introduced the patient choice program in 2006.

3.6 Quality and Safety of Care:

Growth in utilisation poses a challenge to maintaining quality service delivery. Given limited capacity and staffing in many areas, it will be critical to ensure the accreditation of public and private providers, undertake quality assurance and create incentives for health workers to deliver quality healthcare.

According to the Department of Health, in 2007/2008 South Africa's public health system does not measure patient satisfaction, is not conducting clinical audits, morbidity and mortality reviews, nor does it have the tools for proper infection control and prevention.¹⁸ A quality improvement framework would also promote measurable improvement that would address persistent patterns of unequal treatment.¹⁹

In Mexico, universal cover came with substantive and ongoing projects and programmes aimed at improving the quality of care through its National Health Care Quality Campaign launched in 2001. It focused on improving standards of quality in service delivery, while at the same time enhancing the capacity of citizens to demand accountability.

The drive to improve quality includes an accreditation process and is reinforced by the fact that only certified providers are able to participate in the "Seguro Popular" (Mexican NHI). In addition, indicators have been developed and implemented to monitor quality. These include waiting times in hospitals and clinics, as well as distribution and dispensing of pharmaceuticals.

The need for basic research to develop accurate and useful quality-related performance measures is a basic requirement in any health system. This should recognise and mitigate the unintended consequence of providers selecting the healthiest patients in order to improve their scores. It should also mitigate the risk that purchasers focus on reducing costs at the expense of quality. A necessary first step is to increase the accountability of health care organisations, professionals and managers.

3.7 Timeline for Establishing NHI:

Health systems require considered planning to achieve the end goal of universal cover.²⁰ The graph below reflects the number of years taken to achieve this goal once the basic building blocks, such as national service access and equity, are in place. Some countries, such as

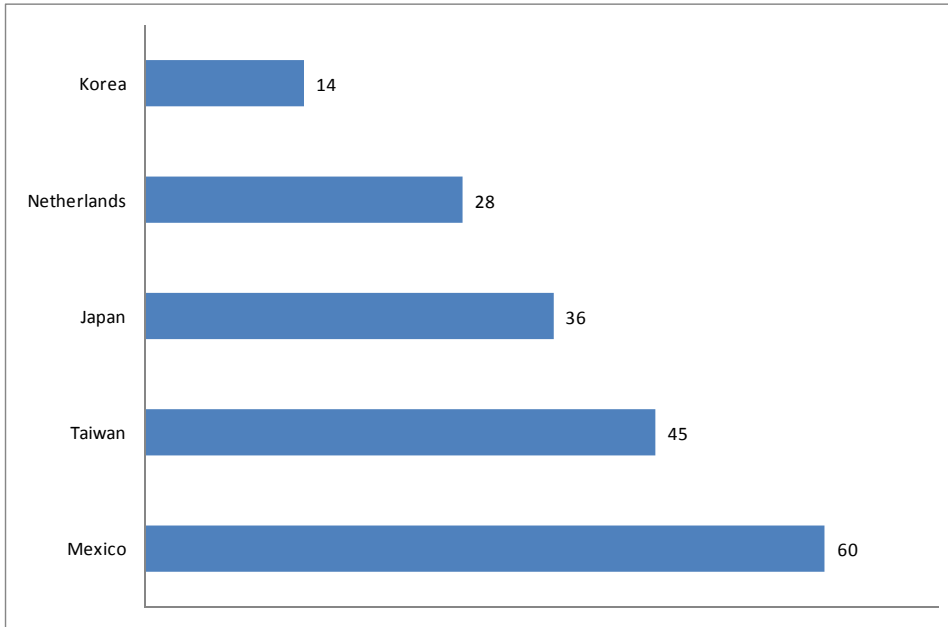
¹⁸ Department of Health Annual Report 2007/8: 67

¹⁹ Lurie N, Jung M and Lavizzo-Mourey R (2005). *Disparities and Quality Improvement: Federal Policy Levers*. *Health Affairs* 24, no. 2: 354-364

²⁰ World health organisation (2005). *Achieving Universal Health Coverage: Developing a Health Financing System. Technical Briefs for Policy Makers*

Korea, reflect shorter timelines as implementation was achieved off a Social Health Insurance platform.

Diagram 3: Time taken to achieve universal health coverage



Source: WHO 2005

4. Conclusion

The decision to move to a single tier market is based on South Africa’s desire to place solidarity above other criteria.

Under this model, each individual would have access to adequate healthcare irrespective of whether s/he has the ability to pay. Employed citizens would be required to contribute towards this community goal by paying a healthcare tax.

By implication, individuals who wish to exercise freedom of choice for services rendered would be required to pay for this over and above their tax burden.

NHI is, simply put, a health system model. It includes a restructure of the mechanisms for funding and service provider contracting relationships. Very importantly, an NHI model does not in itself address funding constraints, existing operational inefficiencies or clinical ineffectiveness.

Furthermore, NHI implies the split of the purchasing and provision functions within the system. A benefit package or a ‘negative list’ (ie. benefits and services not covered) is defined and the NHI fund contracts with or purchases from both public and private providers in order to provide healthcare services to the covered population.

Each country’s health system is the product of its unique conditions, history, politics, and national character. These systems range from the managed competition approach of the Netherlands and Switzerland to the more rigid single-payer systems of the UK, Canada and Norway, with many variations in between.

The public financing requirements for a comprehensive national health insurance are onerous and have typically only been successfully achieved in countries with high GDP per capita and formal employment levels. These conditions allow for significant expenditure on healthcare by spreading the financial burden over the largest possible employment base, thus limiting the fiscal impact.

Improvements in the quality and accessibility of healthcare services for all South Africans would require material increases in both human and financial resources. In environments with resource constraints, the trade-offs would involve either offering a more comprehensive benefit package to fewer people, or alternatively, a less comprehensive benefit package to everyone, with the option of self-funded top-up insurance. Funding constraints indicate that universal coverage will be limited to a basic level of benefits which renders supplementary or substitutive insurance inevitable.

South Africa is plagued by a shortage of healthcare personnel and infrastructure capacity and it is critical that the private and public systems collaborate closely to ensure further investment in skill and infrastructure.

The goal of the current round of health reform must be to achieve significant improvements, as quickly as possible, with regard to the accessibility, depth of the package of services as well as the quality of care provided to all South Africans.

CHAPTER 2

Hospital Admission Rates for the Medical Scheme Population in SA: Is there a Supplier Induced Demand Problem?

Comparison with Hospital Admission Rates in the USA

Authored by Hein van Eck and Sarika Besesar

1. Introduction

In public debates over the past years, much has been said about the inability of medical schemes to expand coverage of comprehensive care to low income South Africans. A large component of medical scheme expenditure - as is the case with all healthcare markets - remains the cost of hospitalisation.

There have been diverse views on the availability of spare capacity in the private hospital sector with the Hospital Association of South Africa (HASA) indicating capacity constraints, while other stakeholders such as the Council for Medical Schemes (CMS) argue that spare capacity is in fact higher than reflected due to the notion of supplier induced demand.

Supplier induced demand is a term used to define the phenomenon wherein healthcare providers deliver more services and pharmaceutical products than absolutely necessary with a profit motive.

To our knowledge, no-one in South Africa has attempted to quantify this so-called supplier induced demand. Obtaining a scientifically sound estimate of the magnitude of supplier induced demand is critically important since it impacts on health policy planning in general and National Health Insurance (NHI) planning specifically. Incorrectly implying a high degree of supplier induced demand would lead to unrealistically high expectations of free capacity in the private hospital industry, which would impact directly on the NHI strategy.

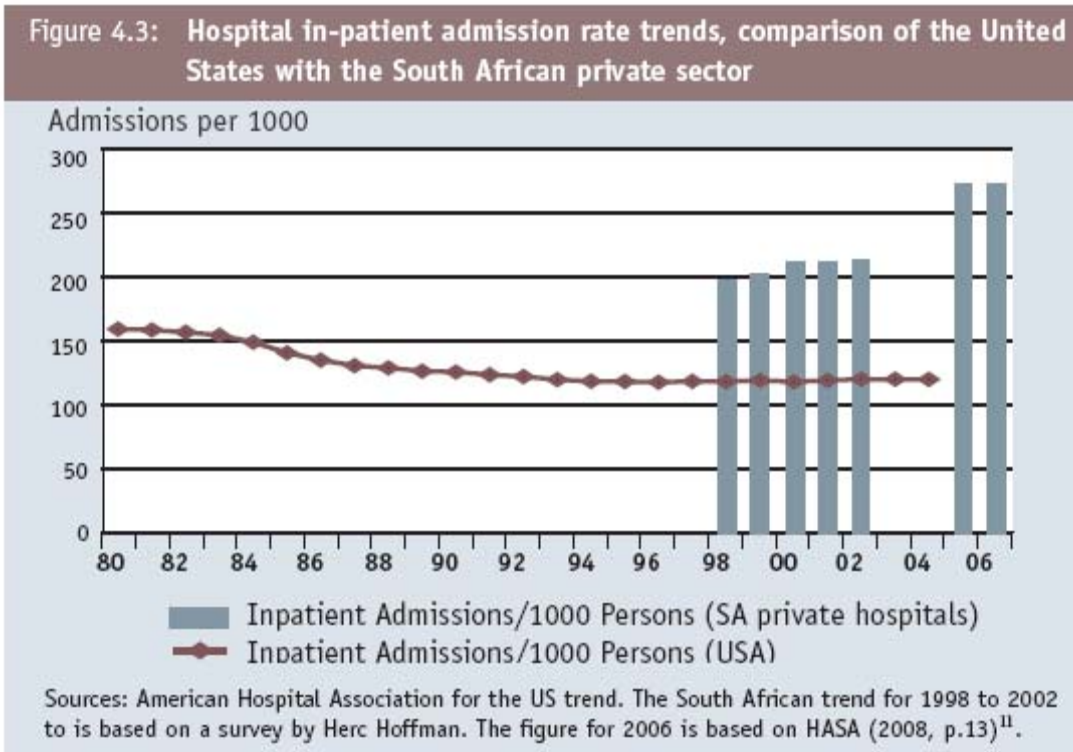
In deductions regarding the degree of supplier induced demand and its impact on cost in the private hospital environment, reference is made to the apparently 'high and increasing'²¹ private hospital sector's admission rates in South Africa relative to those in other countries, notably the United States.

The CMS Research Brief 1 of 2008²² offered a comparison of USA and South African private sector 'in-patient admission rate trends' (see graph below).

²¹ Council for Medical Schemes (2008). *Research Brief 1 of 2008. Evaluation of Medical Schemes' Cost Increases*. p 25

²² Council for Medical Schemes (2008). *Research Brief 1 of 2008. Evaluation of Medical Schemes' Cost Increases*. p 26

In considering the significantly higher admission rate in South Africa’s private hospital sector combined with a much lower average length of stay, the CMS concludes that: “patients of low acuity are being systematically admitted to hospital” (ie. supplier induced demand).



Note: the South African figure for 2006 in Figure 4.3 was not derived from HASA data but rather by HASA based on CMS data which was also quoted in Private Hospital Review, 2008.

The first point to note from the above graph is that the admission rate figures for South African private hospitals are taken from two different sources. The 1998 to 2002 figures are based on a survey by Herc Hoffman and the 2005 to 2006 figures are based on the CMS’ data and definitions. Judging by the trend in the 1998 to 2002 figures and the much higher, but stable figures for 2005 and 2006, one can deduce that these two data sources use vastly different definitions of admissions. One therefore needs to question the extent of admission increases implied by this graph.

The SA data in Figure 4.3 above does not include admissions to public hospitals, which should be incorporated in order to compare total admission rates. The latest CMS data which is publicly available relates to the 2007 calendar year and reports a hospital admission rate of 301.7 per 1 000 beneficiaries (293.9 to private and 7.8 to public facilities).²³

Secondly, the CMS analysis appears to be deeply flawed and makes the common error of comparing ‘apples with oranges’.

²³ Council for Medical Schemes (2008). *CMS Annual Report 2007/8*. p 67

The healthcare sector in the USA - which is the most expensive system in the world as a percentage of GDP - is structurally different to that of South Africa's private healthcare sector.

The USA has a very well developed day clinic and surgi-centre (a form of unattached operating theatre) infrastructure. Admissions to and treatment at such facilities are not measured in the 'in-patient admissions' reported by the American Hospital Association in the graph above. By comparison, such ambulatory and day case 'admissions' are treated at acute care hospitals in the South African private sector, thus distorting comparisons.

In order to get to a position where one can compare 'apples with apples'; there are two possible methodologies that could be followed:

- a. One could include all USA day case and related admissions that would normally be performed in or at a private hospital in South Africa due to the lack of a surgi-centre infrastructure; or
- b. Remove all day cases and ambulatory admissions from the South African medical schemes data in order to make it comparable to the USA's in-patient admissions.

While the ideal would have been to perform both exercises, the first is impossible due to the lack of a central database in the USA separately showing all such 'outpatient cases'.

The second method mentioned above has therefore been applied and is outlined in this chapter.

In addition to the above day-case in-patient/outpatient anomaly, there are other factors such as demographic profile and burden of disease which contribute to the difference between hospital admission rates in SA and the USA. These factors need to be fully understood before drawing conclusions regarding relative levels of hospital utilisation or supplier induced demand from a comparison of the two sets of figures.

2. Definition of Admission and Populations

The CMS reports on private hospital utilisation in its Annual Report. In the 2006 and 2007 reports, two measures of utilisation are provided:

- a) 'Beneficiaries admitted to hospital'; and
- b) 'Admissions'.

The former measure represents the number of unique medical scheme beneficiaries who were admitted to private hospitals in the year (ie. if a beneficiary was admitted three times during the year, they would be counted as one instance in this statistic).

The latter measure, which we shall refer to as 'unique admissions', represents the total number of admissions among medical scheme beneficiaries (the beneficiary admitted three times in the year would be counted as three instances in this statistic) and is the more universally adopted measure regarding admission rates. This measure has been applied throughout this chapter.

This chapter deals exclusively with hospital admission rates in the medical scheme industry in South Africa and the entire USA population respectively. For purposes of simplicity, we will merely refer to the 'SA population' or 'SA admission rate' and 'USA population' or 'USA admission rate' respectively. 'Private hospitals in SA' refers to facilities with practice code 057 and 058 only (ie. acute care hospitals).

3. Approach

As mentioned in the introduction, the adopted method/approach will remove all day cases and ambulatory visits from SA admissions in order to ensure it is comparable to the USA's in-patient admissions.

Further adjustments are made to the published USA admission rate to account for differences in demographic profile and other factors which are outside the influence of the hospital industry. The resulting figures should then be more suitable for comparative purposes.

A thorough investigation of the possible sources of difference was conducted in collaboration with the Advisory Board Company (USA). The main sources of difference expounded in this chapter include:

a. In-patient vs. outpatient admissions:

The SA admission rates as reflected in the CMS Annual Report for 2007 include most hospital visits, including a major component of emergency unit visits (that do not lead to hospital admission) and ambulatory procedures such as gastroscopies and colonoscopies. The SA figure also includes admissions and visits to facilities other than acute care hospitals, such as day clinics, mental health institutions, etc. The USA figure on the other hand, covers in-patient admissions to acute care hospitals only.

b. Definitions for in-patient admissions:

South Africa and the USA use different definitions for what constitutes in-patient admissions.

c. Demographic profile:

Health risks are known to be closely associated with age and gender, and the SA and USA populations have significantly different demographic profiles.

d. Maternity cases:

The SA and USA populations experience different maternity rates.

e. Insured vs. total population:

The SA admissions data is drawn from the (insured) medical schemes environment, while the USA data applies to the total population and includes an uninsured sub-population. The uninsured have markedly different admission rates to hospital than the insured.

There are two further major differences between the SA medical scheme population and the total USA population that cannot be quantified:

a. Burden of disease:

The SA and USA populations have different levels and patterns of disease burden, not least of all because of their different levels of development.

b. Anti-selection:

Given the legal requirement for community rating and open enrolment in SA's medical schemes industry, combined with coverage of only 15% of the country's population, one would expect a higher degree of anti-selection than in the USA. This will be covered in more depth further on in this chapter.

4. Data

The data used for the purpose of deriving and adjusting the admission rates for SA (medical scheme population as defined above) is the private hospital dataset provided by participating HASA members to Deloitte ('HASA data').

Deloitte reconciled the hospital utilisation data with financial data, which in turn was verified against audited annual financial statements of the participants. The data includes all medical scheme admissions related to private hospitals (practice code 057/058) from Life Healthcare, Medi-Clinic and Netcare ('the three large hospital groups').

USA hospital admission data was obtained from *The Advisory Board*²⁴ and *HCUP*²⁵ ('USA data'). This USA data relates only to acute care hospitals.

Both the HASA data and USA data are in respect of the 2007 calendar year, which is the most recent year for which corresponding data was available.

Furthermore, a significant SA medical scheme administrator supplied the relative breakdown of its members' hospital visits, as per the CMS's published figure, into different categories.

These categories relate to the type of admission (ie. ambulatory, same day, one day and multi-day), whether the admission was surgical or medical in nature and the facility type in question. The admissions data was further split into facility type, such as private hospitals, day clinics, sub-acute facilities and mental health institutions, to name but four.

This data was used as an external reasonability check on the HASA data, since the HASA data relates to private hospitals (practice code 057/058) only and excludes ambulatory cases (as opposed to the published CMS figure, which includes all facility types and most ambulatory cases). The results showed that the admission rate based on the HASA data was higher than the administrator's figures would suggest and thus supports the credibility or prudence of the results.

²⁴ The Advisory Board Company

²⁵ HCUP stands for "Healthcare Cost and Utilization Project" and is an online database on AHRQ ("Agency for Healthcare Research and Quality")

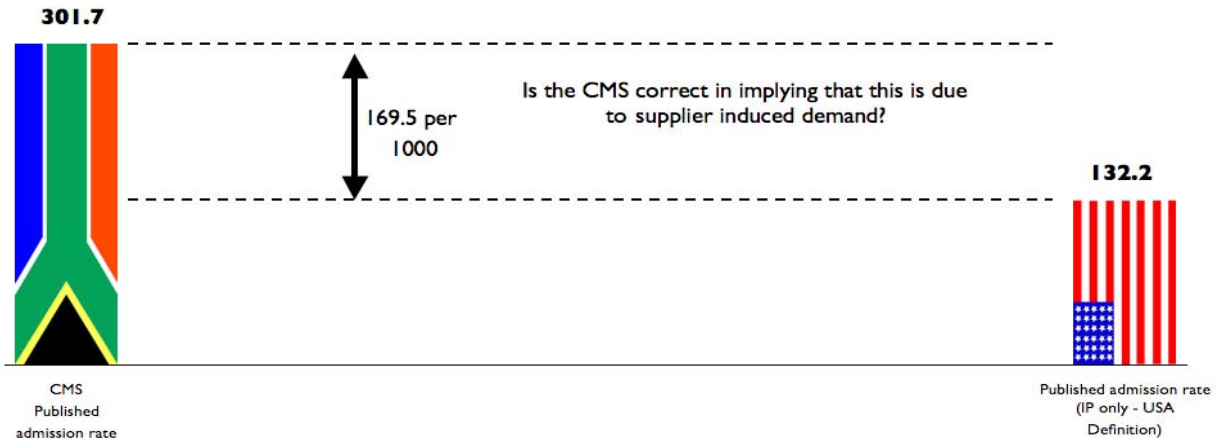
5. Point of Departure... What is the Admission Rate Gap?

Diagram 1 below shows the difference in published hospital admission rates for SA (301.7 per 1 000 population – ie. 293.9 to private and 7.8 to public hospitals)²⁶ and the USA (132.2 per 1 000) for the 2007 calendar year.

Diagram 1:

Comparing RSA and USA published admission rates per 1 000 population in 2007 reveals a major gap

"Patients of low acuity are systematically being admitted to hospital" (in the RSA private sector), CMS report brief 1 of 2008



Note: The SA figure includes medical scheme admissions to public hospitals and is higher than the figure shown in Figure 4.3 in the preamble due to this and the fact that it relates to different calendar years (2007 and 2006 respectively).

Therefore the question is: was the CMS correct in implying that more than half of medical scheme admissions in SA are due to supplier induced demand? The remainder of this chapter will endeavour to shed light on this question.

6. Are More than Half of Hospital Admissions Due to Supplier Induced Demand?

6.1 Adjustments Made to SA Published Admission Rates:

6.1.1 Step 1: Excluding outpatient visits and admissions to non-acute care facilities

²⁶ Council for Medical Schemes (2008). *CMS Annual Report 2007/8*. p 67

The most significant absolute difference in the SA and USA admission rates is the fact that the SA rates include both in-patient and outpatient admissions, while the USA figures include in-patient admissions only.

Outpatient admissions in this instance include all ambulatory cases, visits to emergency units, same-day cases and hospital stays of less than 24 hours.

The SA admission rate also includes admissions and visits to facilities other than private and public hospitals, such as day clinics, mental health institutions, etc. For comparative purposes, the outpatient visits to hospitals and admissions to other facilities need to be removed from the SA admission rate.

However, the SA admissions data used to derive the published CMS admission rate is not in the public domain and is therefore unavailable for the purposes of identifying and removing outpatient visits to hospitals and admissions to other facilities indicated above. We have therefore derived an in-patient admission rate figure for SA directly from the HASA data.

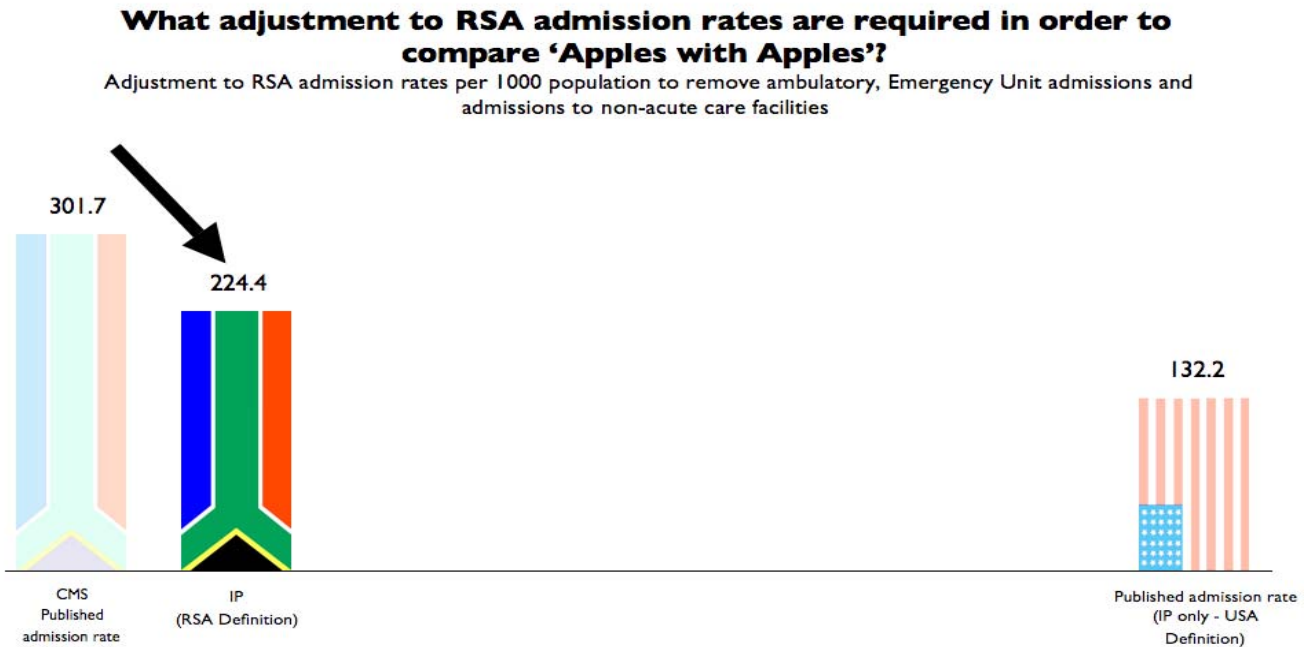
The data utilised for this purpose was based on the 2007 admissions for medical scheme beneficiaries who were treated as in-patients at a hospital owned by one of the three large hospital groups (ie. the HASA data as previously defined). The commonly used SA definition of an in-patient admission was applied for this purpose – ie. cases with a charge for accommodation ('IP - RSA Definition'). This would therefore include all cases where a bed was assigned to a patient - even if only for a day.

In order to derive the in-patient admission rate to private hospitals in SA, it was assumed that the proportion of admissions seen by the three large hospital groups is equal to the proportion of private hospital licensed beds in these groups – 81.8%. Using this proportion, the HASA admissions data was proportionately increased to represent a figure for the total SA medical scheme population. The average medical scheme population for 2007 was taken as the exposure data.

The SA hospital admission rate using the 'IP – RSA Definition' as defined above, equals 224.4 admissions per 1 000, compared with the published CMS admission rate of 301.7. This means that 77.3 admissions per 1 000 comprise emergency unit and ambulatory visits (such as gastroscopies and colonoscopies) to hospitals and admissions to non-acute care facilities as described earlier.

The 301.7 admission figure constitutes 293.9 admissions per 1 000 with respect to private hospitals and 7.8 in terms of public hospitals. The HASA admissions data was proportionately increased to include the same assumed proportion of public hospital admissions (ie. HASA admissions \times 301.7 \div 293.9) as in the CMS data. The implicit assumption is that the adjustments to exclude outpatient cases and other facilities' (such as mental health) admissions is equal for private and public facilities. The results are not sensitive to this assumption.

Diagram 2:



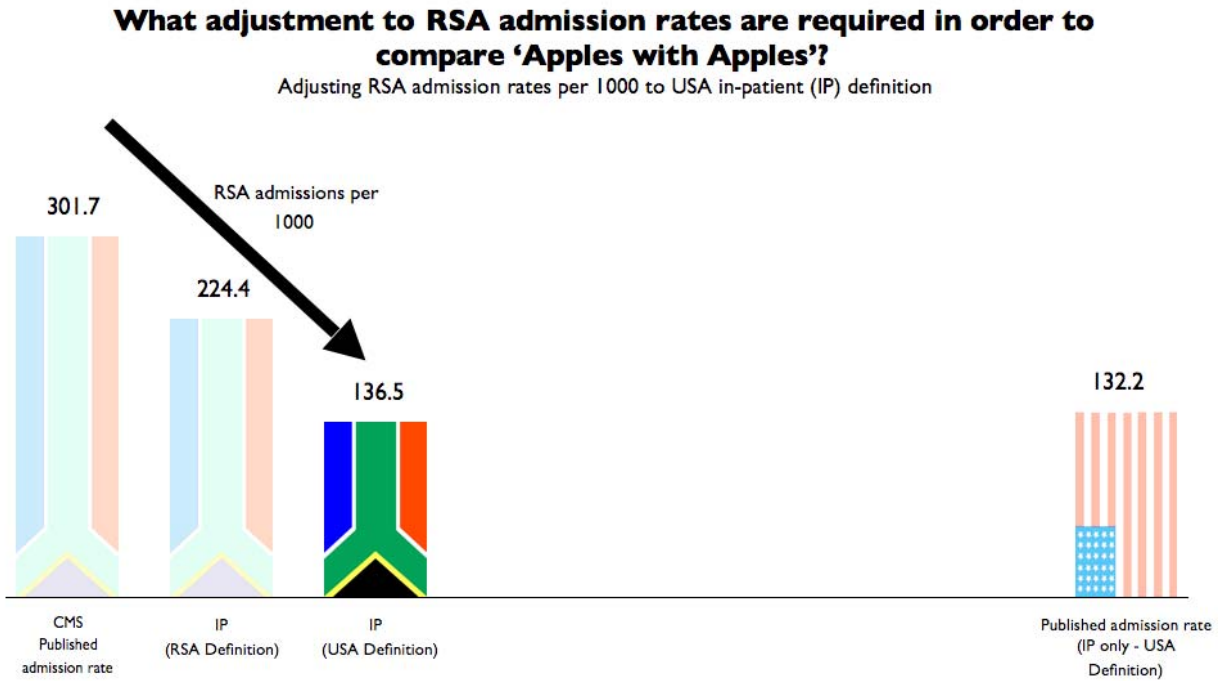
6.1.2 Step 2: Applying the USA definition of in-patient admission

The SA and USA definitions of in-patient admissions differ in the following respects:

Under the USA definition, hospital admissions with a duration of 24 hours or less are regarded as outpatient admissions. Admissions with a duration of 24 hours or less were therefore identified and removed from the SA data.

Diagram 3 below shows how this adjustment causes the admission rate to reduce from 224.4 to 136.5 per 1 000. In other words, 87.9 per 1 000 admissions represent same day admissions and overnight cases shorter than 24 hours.

Diagram 3:



6.2 Adjustments to USA Admission Rates:

6.2.1 Step 1: Adjusting for newborn babies

The USA admission figures include healthy newborn babies (in addition to their mothers). In other words, one normal birth in the USA results in an admission count of two.²⁷ In SA's figures, healthy newborn babies are not counted since separate accounts are not created for them (unlike newborn babies with complications who are admitted in their own right). The normal newborn admissions were therefore removed from the USA figures.

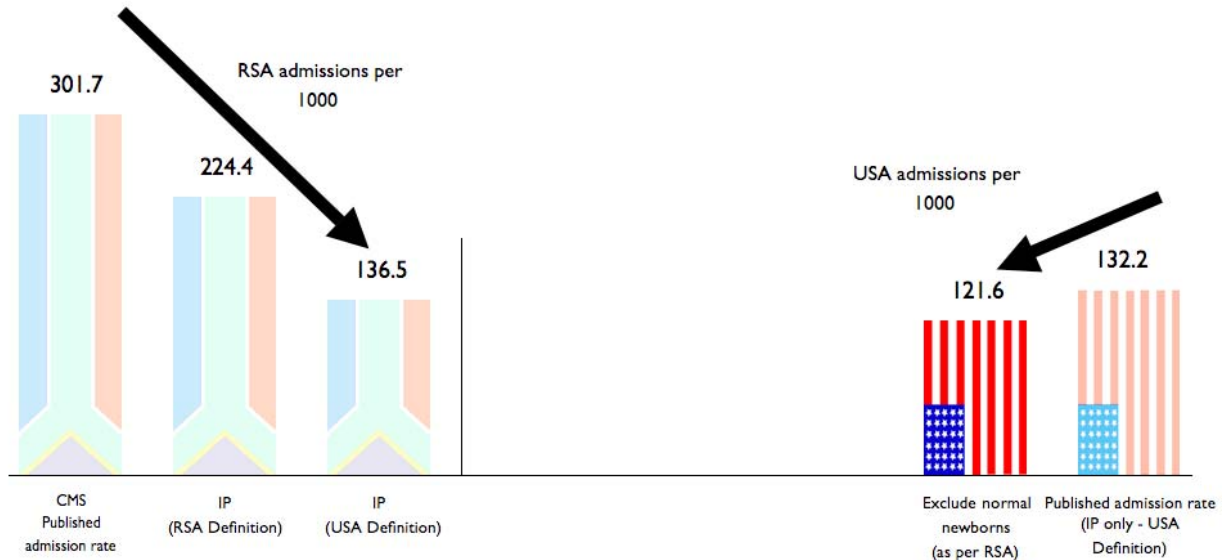
Diagram 4 below shows how this adjustment causes the USA admission rate to reduce from 132.2 to 121.6 per 1 000.

²⁷ Normal newborns in the USA is classified as a separate DRG (DRG 391) according to AHRQ ("Agency for Healthcare Research and Quality")

Diagram 4:

What adjustment to USA admission rates are required in order to compare 'Apples with Apples'?

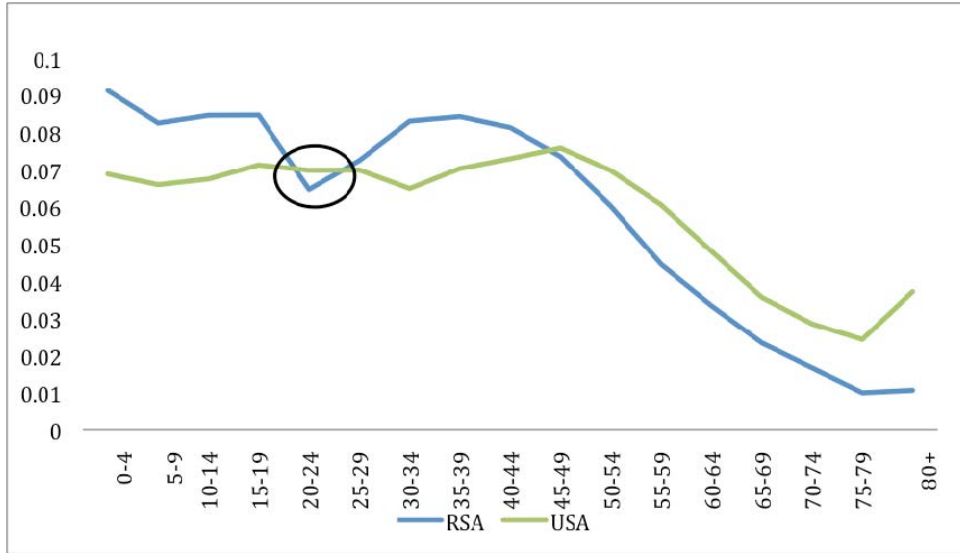
Exclusion of normal newborns (In RSA, normal newborns counted as part of mothers' admissions)



6.2.2 Step 2: Adjustment for age profile

The USA admissions data is available split by age category. It is therefore possible to recalculate the USA admission rate based on the SA population age profile (which was derived from the CMS' Annual Report 2007/8). As might be expected, the USA population has a heavier weighting of older people and the adjustment for age profile therefore has the effect of reducing the USA admission rate. Diagram 5 below illustrates this difference, as well as the phenomenon of young and healthy individuals opting out of the medical scheme industry in SA. This will be covered in greater detail further in this chapter.

Diagram 5: Population comparison by age RSA insured and total USA 2007



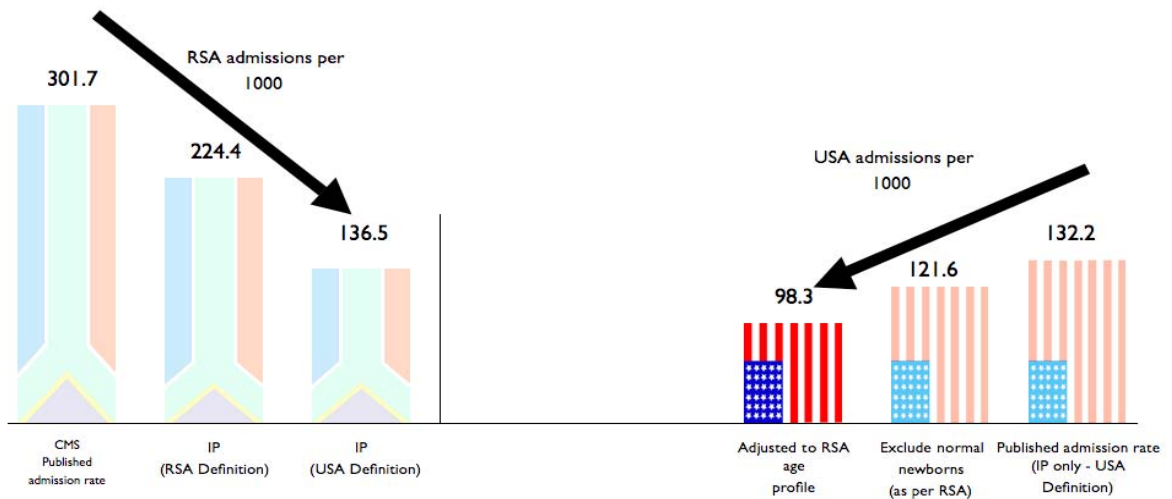
Note: The SA population refers to medical scheme beneficiaries only

Diagram 6 below shows how this adjustment causes the USA admission rate to reduce from 121.6 to 98.3 per 1 000.

Diagram 6:

What adjustment to USA admission rates are required in order to compare 'Apples with Apples'?

Adjusting USA admissions rates to RSA age profile

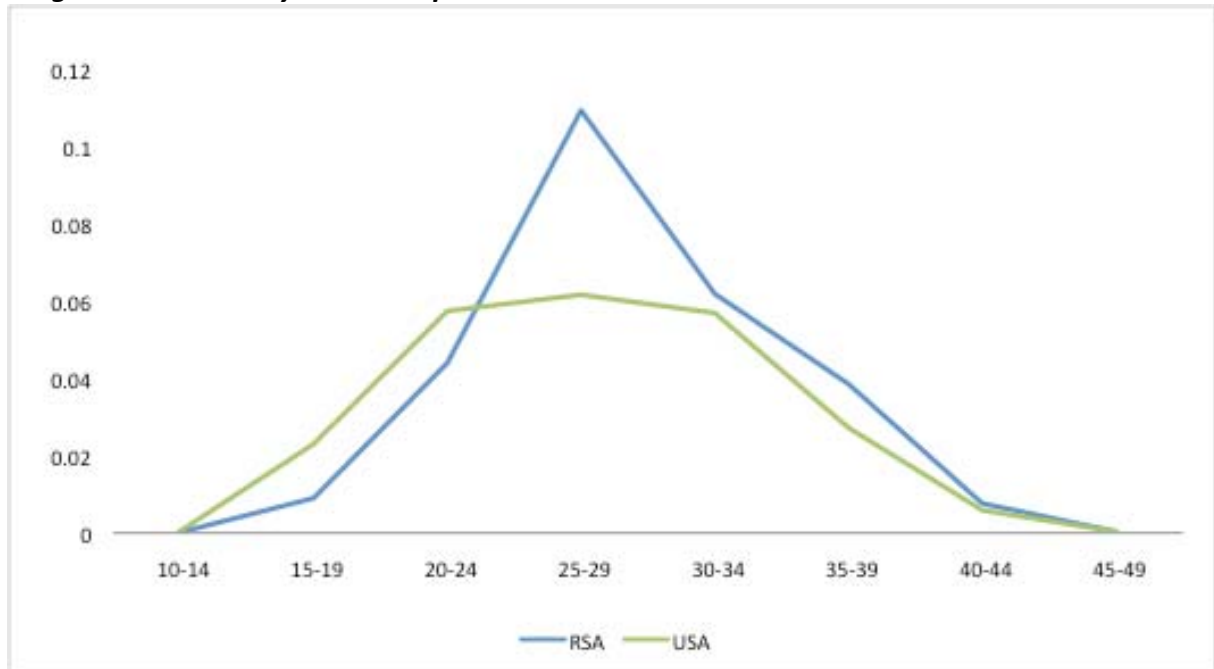


6.2.3 Step 3: Maternity rate adjustment

It is fair to assume that the number of maternity admissions is not influenced by 'supply side' factors.

It is also evident from the following graph that the maternity admission rates for the SA population are significantly higher than those observed in the USA population.

Diagram 7: Maternity rates comparison RSA insured vs. total USA 2007



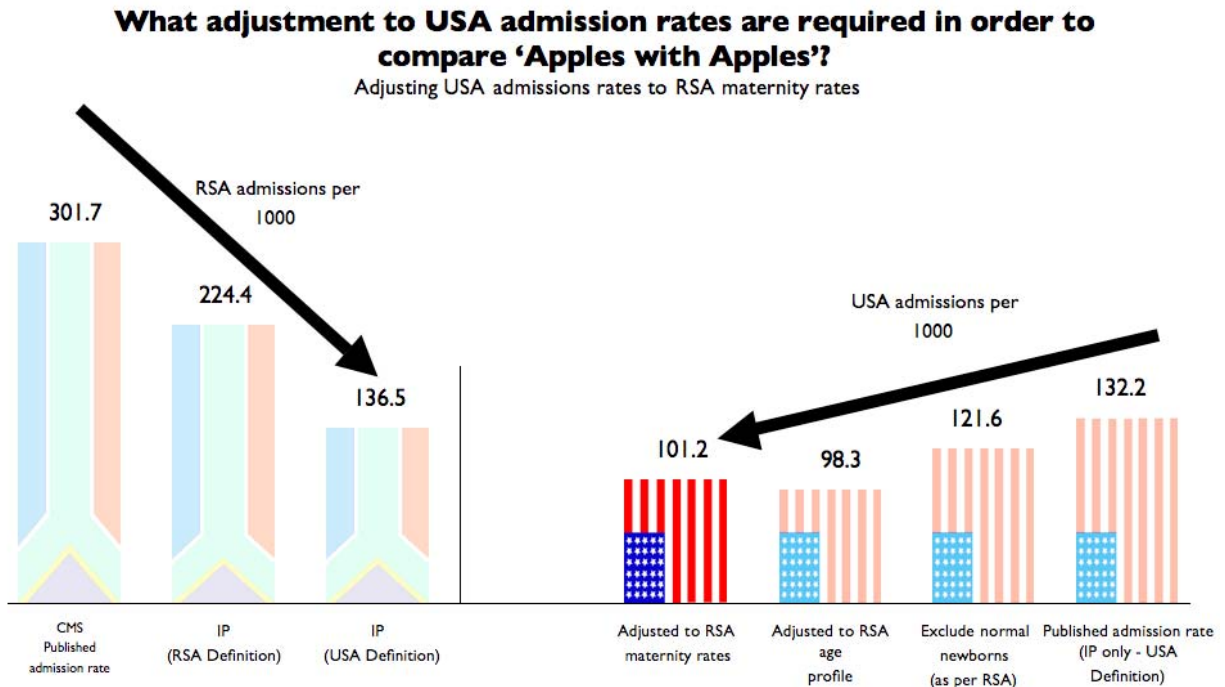
Note: SA medical scheme maternity rate calculated from Medi-Clinic data based on 25% market share for Medi-Clinic

The most likely factor behind the higher maternity rates in SA is anti-selection by young families who only join the medical scheme industry once they plan to start a family. It is also possible that the SA population experiences higher fertility rates than does the USA.

Whatever the reason, it is appropriate to make an adjustment in this regard to the overall admission rates for comparative purposes. The approach taken was to re-calculate maternity figures for the USA population based on the maternity rates observed in the SA population.

Diagram 8 below shows how this adjustment causes the USA admission rate to increase from 98.3 to 101.2 per 1 000.

Diagram 8:



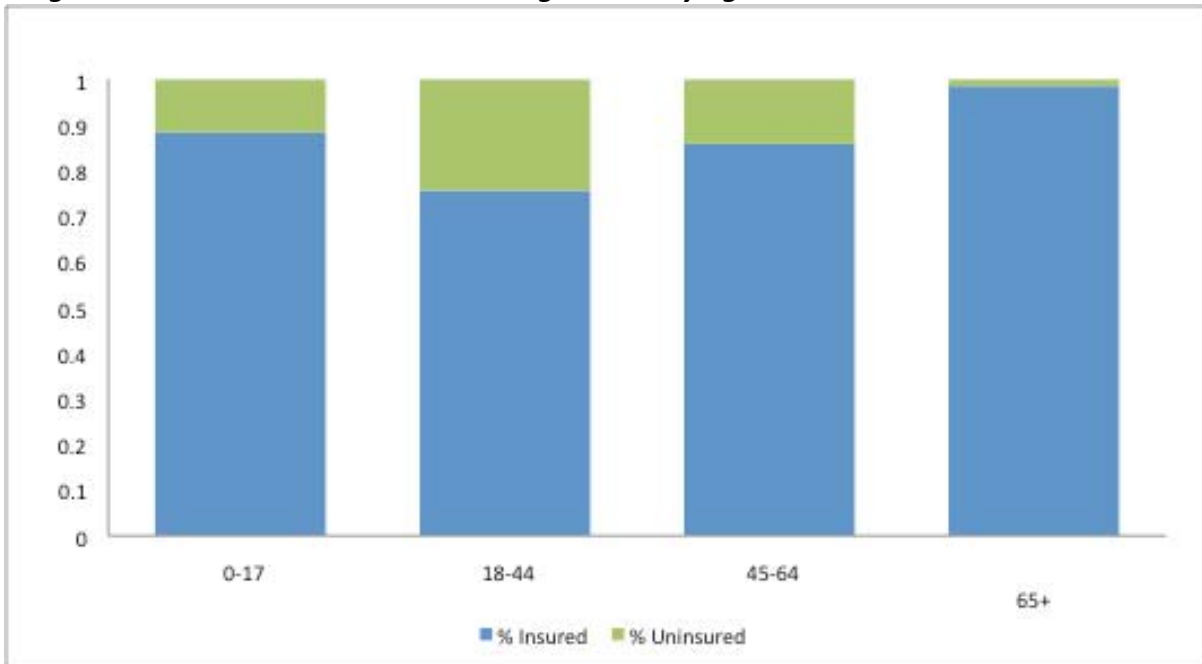
6.2.4 Step 4: Exclude uninsured population

The comparison of admission rates is also influenced by the fact that the SA data relates to the (insured) medical schemes population while the USA data relates to the total USA population. In addition to other potential health risk profile differences between insured and uninsured populations, insured populations usually experience higher hospital admission rates due to:

- a) The uninsured being less likely to undergo any elective surgery for affordability reasons, and
- b) Anti-selection - In a voluntary insurance environment, those choosing medical cover are likely to take their health risk status into account (they are generally less healthy), while those choosing to opt out from cover generally tend to be healthier. In other words, there is a tendency for people with significant potential to file claims wanting to obtain medical scheme coverage.

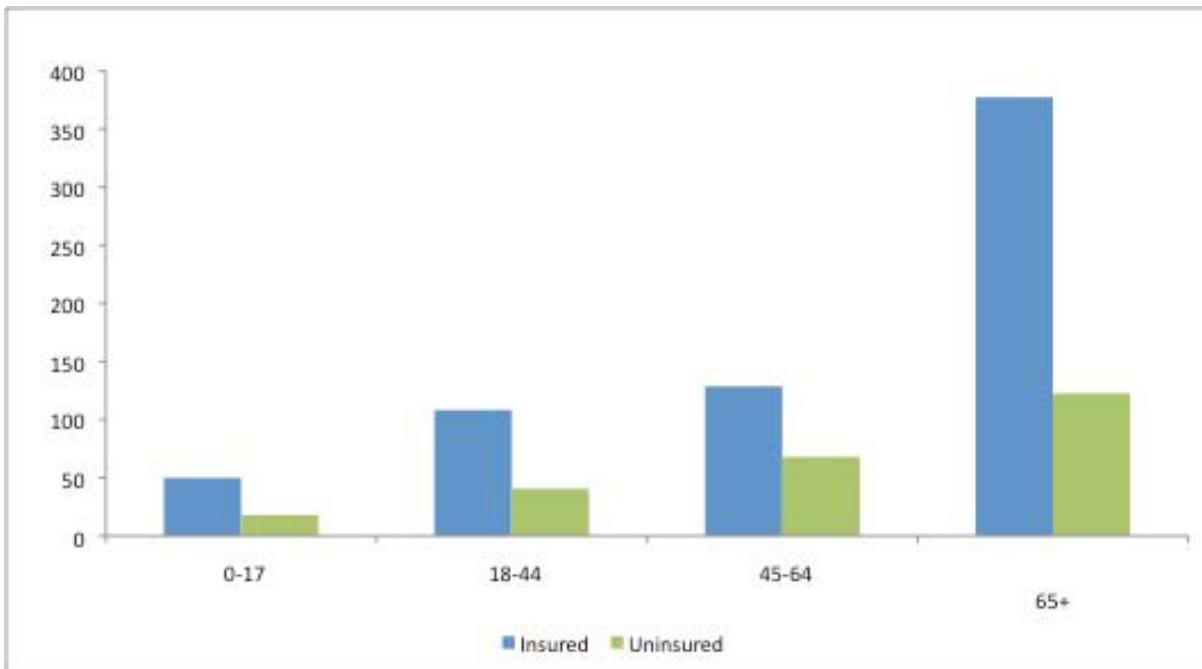
Approximately 45 million of the 300 million-strong USA population are uninsured. These individuals are generally younger (see Diagram 9 below) and often forfeit elective treatment due to affordability issues (see Diagram 10 below). As a result, the admission rate for the uninsured is 68% lower than that of the insured population.

Diagram 9: USA health insurance coverage status by age 2006



Note: The above graph is based on 2006 – the latest split data available. It was assumed that the same ratios apply for 2007.

Diagram 10: USA admission rates by insurance status 2006



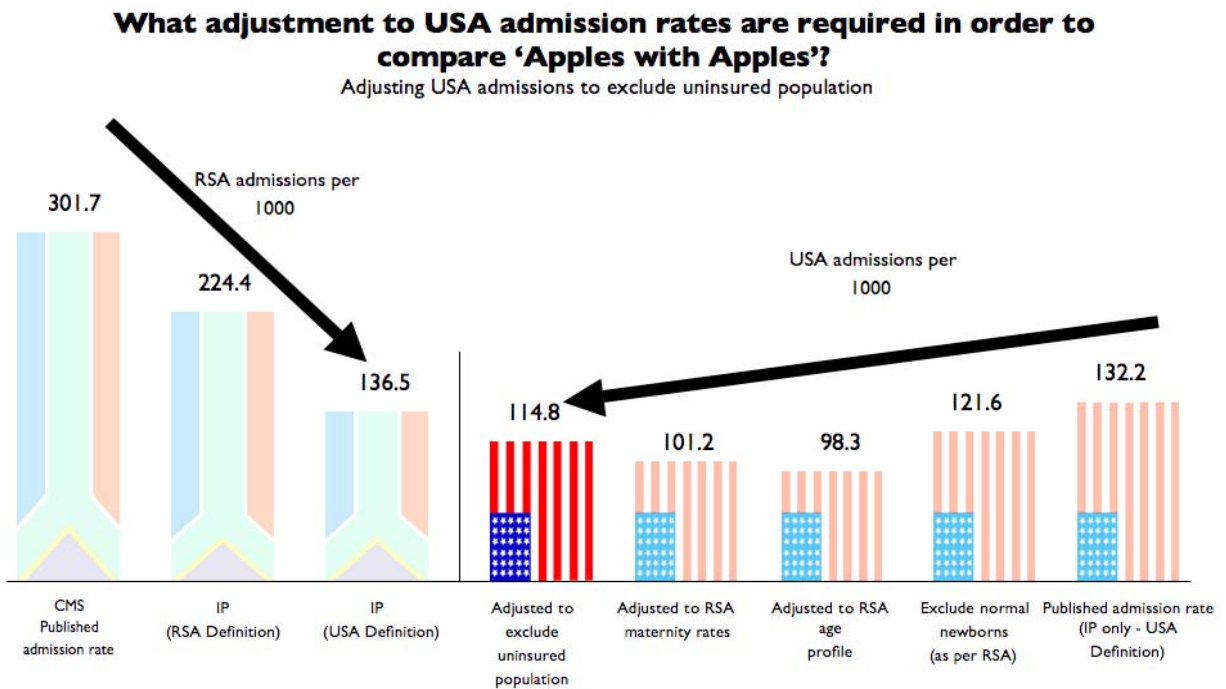
Note: The above graph is also based on 2006 data (see Diagram 9 note)

The lower admission rates for the uninsured by age category can be seen in Diagram 10 above. In order to remove the distorting effect of the uninsured, the USA data was split

between the insured and uninsured portions of the population and an adjusted admission rate calculated by omitting the uninsured from both the numerator and denominator.

Diagram 11 below shows how this adjustment causes the USA admission rate to increase from 101.2 to 114.8 per 1 000. This adjustment effectively changes the USA admission rate to an insured population admission rate.

Diagram 11:



7. ‘Unquantifiable’ Sources of the Remaining Gap

7.1 Burden of Disease:

The SA and USA populations have different levels and patterns of disease burden, not least of all because of their different levels of development. However, from the available data it is not possible to adjust the admission rates of either country to account for the other’s burden of disease.

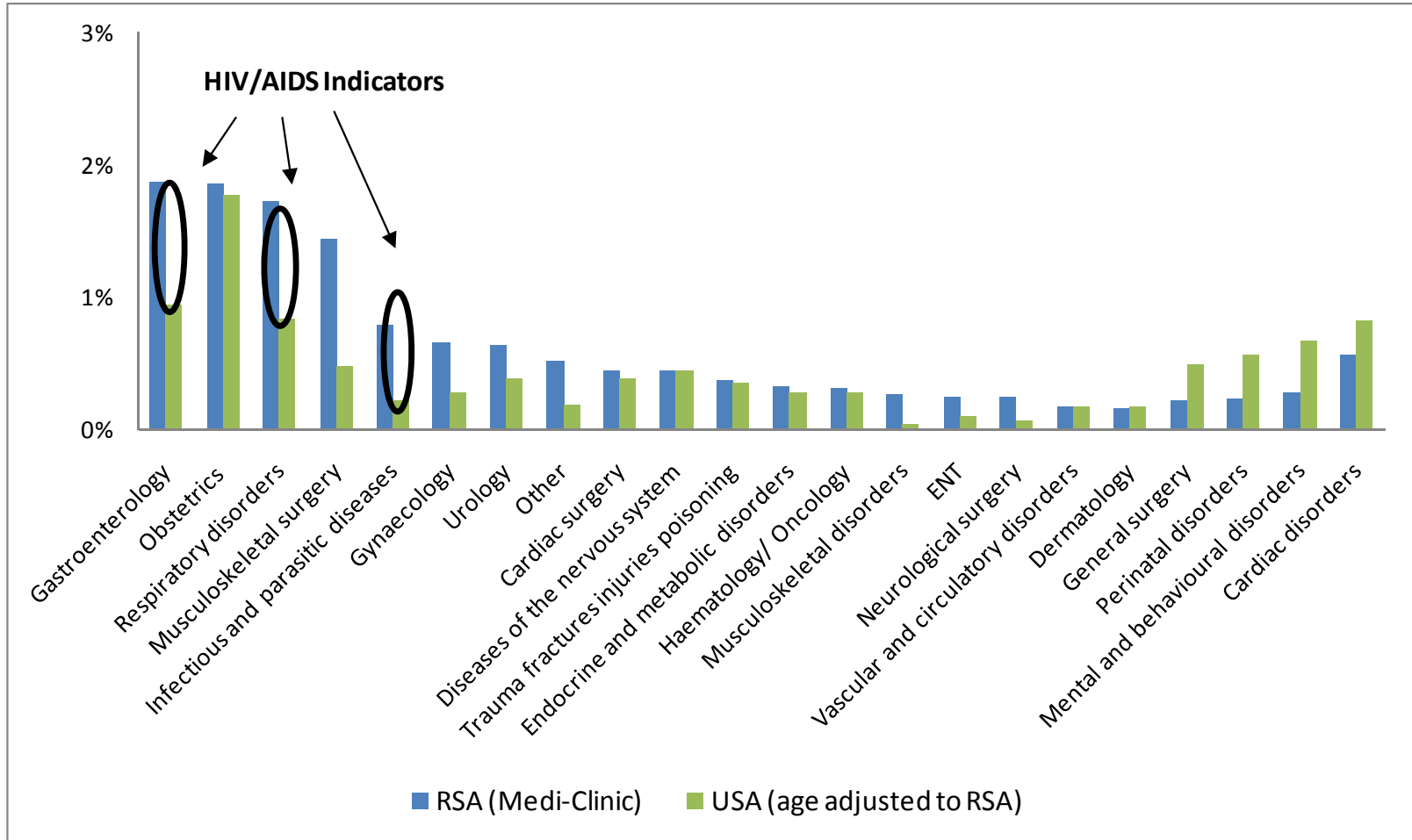
Notwithstanding the above, Diagram 12 below demonstrates the proportion of SA and USA admissions by diagnosis grouping categories.

The SA figures are based on Medi-Clinic data and Medi-Clinic’s internal diagnosis grouper has been applied (which allows the flexibility to compare with different versions of DRG). The USA data is based on DRG data from the Advisory Board.

The diagram below (Diagram 12) shows a higher proportion of SA admissions related to categories such as respiratory disorders, gastroenterology and infectious diseases, partially due to the impact of HIV/Aids. Other factors, such as basic hygiene and the socio-economic level of the population (even given the fact that we are considering the medical scheme population), also influence these observed differences.

The USA admissions are more skewed towards lifestyle diseases such as cardiac and circulatory disorders.

Diagram 12: RSA and USA admission rates by category 2007



Note: The "Other" category is made up of Plastic and reconstructive surgery, Dental and maxillo-facial, Ophthalmology and Breast disorders.

7.2 Anti-Selection:

It could also be argued that the insured population in SA is likely to display a higher degree of anti-selection (it attracts higher risk members) than the insured population in the USA. This could partially be due to the Community Rating and Open Enrolment that applies to all medical schemes in SA.

Community Rating is not widely used in the USA, especially not for individual business, with rate bands²⁸ being more commonly used as a tool to provide limited protection for the sick and old. Rate bands limit how much insurers can vary premiums for each policyholder based on the health and claims of the policyholder. Thirty-seven US states have enacted rate bands for coverage sold to small businesses. Furthermore, many states allow insurers to decline cover for individuals deemed to be 'medically uninsurable' due to the high risk they pose.

The impact of Community Rating and Open Enrolment in SA was described as follows in the *Private Hospital Review, 2008 (page 28)*:

"The introduction of Community Rating, which determines that medical scheme contribution rates may not differ based on a person's age or state of health, led to the young and healthy experiencing a significant increase in contribution rates when the Medical Schemes Act came into force. Conversely, cover became more affordable for older and sicker individuals. As a result, younger and healthier individuals either remained outside the industry (did not join medical schemes) or left the industry, while a greater number of older and sicker individuals joined the industry. This adverse selection led to a significant deterioration of the medical scheme industry's risk profile, far worse than the ageing impact would suggest."

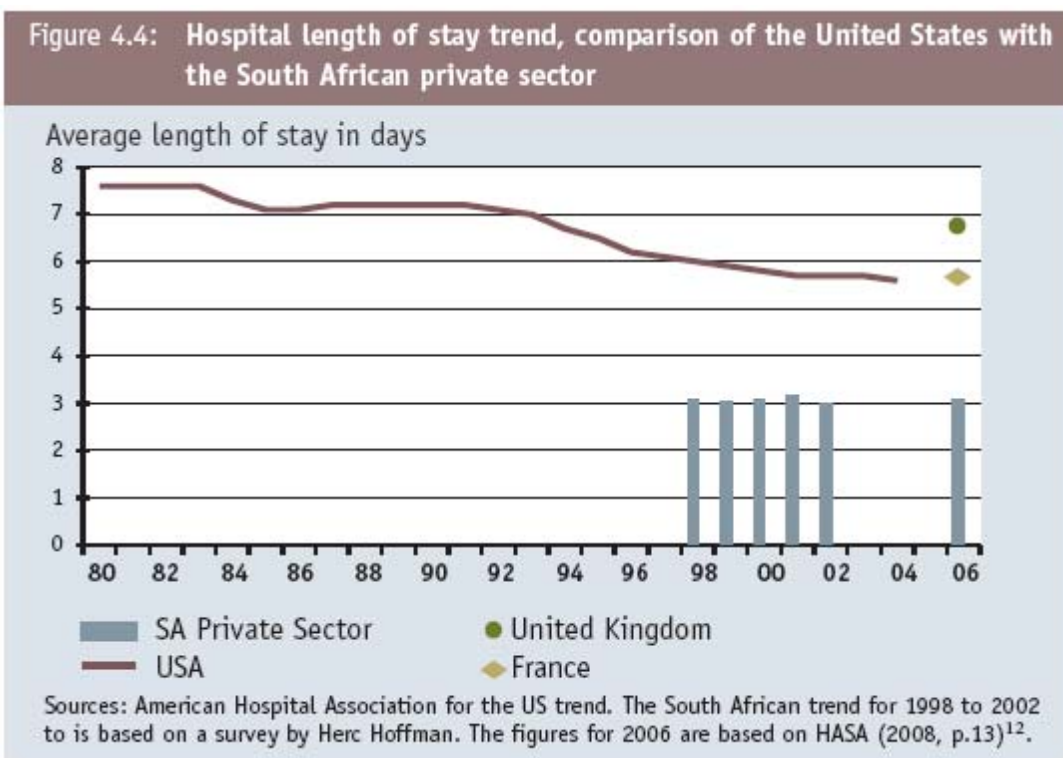
"Open Enrolment dictates that no one may be declined membership of an open medical scheme, irrespective of their age or state of health."

No attempt has been made to adjust for the impact of anti-selection on the SA hospital admission rate.

²⁸ Kofman et al. *Health Insurance Regulation by States and the Federal Government: A review of current approaches and proposals for change.*

8. A Word on Hospital Length of Stay

The CMS Research Brief 1 of 2008²⁹ also offered a comparison of USA and South African private sector ‘average length of stay trends’ (see graph below).



The graph above indicates the average length of stay (ALOS) in the USA to be roughly 5.6 days, while the SA figure is slightly longer than 3 days. The CMS goes on to conclude that: *“the peculiar lengths of stay levels actually do not compare well with the international benchmarks and, when seen together with the very high admission rates, suggests that patients of low acuity are being systematically admitted to hospital”*.

Once again the CMS is comparing ‘apples and oranges’, due to the different admission types being compared as explained above (ie. in-patient admissions in the USA vs. all hospital visits in SA). The definition of ALOS also differs between SA and the USA, with the SA figure showing the ‘billed’ ALOS, which counts half days. The USA uses the census method of calculating ALOS, ie. date of discharge, less date of admission plus one. In other words, a patient admitted on a Monday afternoon and discharged on a Wednesday morning would have a LOS of 2 days in SA (ie. ½ day for Monday, 1 day for Tuesday and ½ day for Wednesday) while it would be counted as 3 days in the USA (ie. 1 day for each of Monday through to Wednesday).

The HASA data shows an ALOS of 3.16 days based on the SA in-patient definition (‘IP – RSA Definition’ as defined above) and the SA definition of counting billed days.

²⁹ Council for Medical Schemes (2008). Research Brief 1 of 2008 –Evaluation of Medical Schemes’ Cost Increases. p 26

The ALOS of the HASA data increases to 4.53 days if one considers only admissions as per the USA definition of an in-patient case (ie. longer than 24 hours).

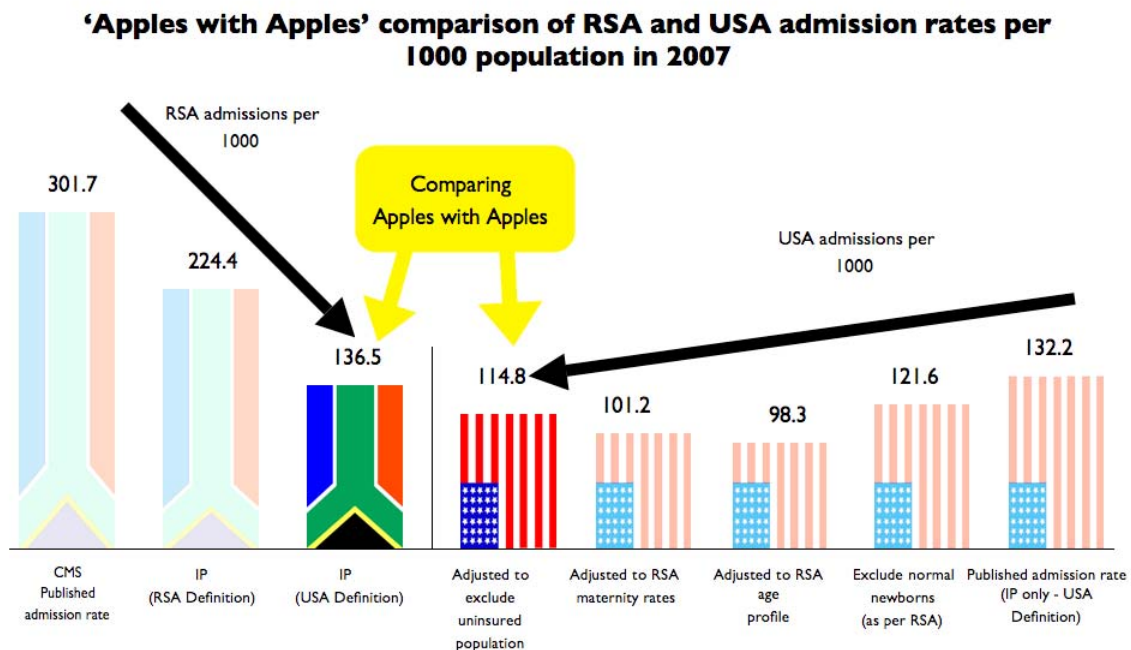
This figure further increases to 5.14 days if one applies the census method to counting length of stay.

Although further adjustments are required in order to compare ALOS on an ‘apples with apples’ basis, the comparison of 5.6 days in the USA vs. 5.14 days in SA would be a far more realistic place to start.

9. Conclusion

In answering the question posed earlier... is the CMS correct in implying that more than half of medical scheme admissions in SA are due to supplier induced demand?, we should refer to Diagram 13 below which indicates the respective admission rates for SA and the USA once significant differences have been accounted for.

Diagram 13:



Note: The difference in Burden of Disease and impact of anti-selection for RSA and USA can not be quantified, but partially accounts for the remaining difference.

The remaining difference would be attributable to a combination of:

- Differences in the burden of disease of the respective populations as mentioned before;
- Differences in the extent of anti-selection as discussed above; and
- Other factors such as cultural attitudes to claiming, supplier induced demand, etc.

It is clear from this exercise that there are a number of factors which have a material impact on the levels of hospital utilisation in SA and the USA. There is also strong evidence that after adjusting for those factors which are outside the influence of the hospital industry, the admission rates are a lot closer than suggested by a direct comparison of the headline admission rates published in the two countries ie. a difference of 21.7 admissions per 1 000 rather than 169.5 admissions per 1 000. The remaining differences may be a more appropriate starting point for a discussion regarding the role of supply-side factors in the increase of hospital costs over time.

CHAPTER 3

Quantifying the Potential Capacity in the Private Hospital Sector to Absorb an Influx of Newly Covered Patients

Authored by Barry Childs, Lighthouse Actuarial Consulting

1. Introduction

Any proposed reform of South Africa's national health system requires an evaluation of the country's existing health assets and raises questions regarding the spare capacity available in the healthcare system. For the South African hospital industry, this asset base exists in two parts – public and private facilities.

The content and data in this chapter will build on the issues raised in the Private Hospital Review, 2008 and consider the questions of occupancy and capacity in more detail. The aim of this chapter is to gain a better understanding of the implications of expanding the medical scheme population with regard to the use of private hospital beds.

The question of hospital capacity also raises the issue of the level of hospital use in South Africa. While this chapter will not deal with these issues directly, chapter 2 of this document provides a detailed analysis on this topic, comparing South African admission rates and bed usage to those in the United States.

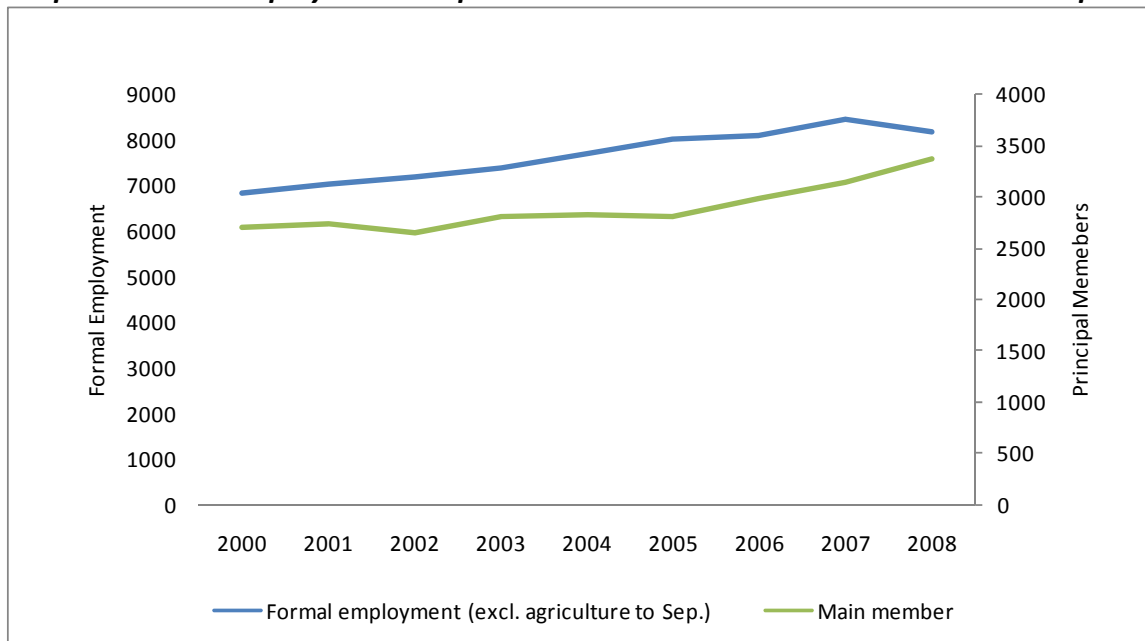
While calculating the total number of beds available in private hospitals is relatively simple, translating this data into a meaningful understanding of capacity and in particular *spare* capacity, is more complex.

Growth in the medical scheme population over the past 10 years has been driven by growth in formal employment, the registration of bargaining council schemes as restricted schemes³⁰ and more recently, via the implementation of GEMS.³¹ Evidence of the impact of formal employment growth can be inferred through analysis of the correlation of labour force survey results and medical scheme principal member growth.

³⁰ Bargaining council schemes are legacy schemes granted exemption from the Medical Schemes Act (131 of 1998). Some of these schemes have now been registered as restricted schemes under the Act (in other words the schemes are employer based)

³¹ Council for Medical Schemes (2008). *CMS Annual Report 2007/8*.

Graph 1: Formal employment compared over time to medical scheme membership



Source: Council for Medical Schemes reports and StatsSa Annual labour force surveys

With indications that the public hospital system is under severe strain, the question arises as to whether the private hospital industry has the capacity to absorb further demand from the next tier of possible medical scheme membership – regardless of whatever form the funding of this membership might take.

In order to address this question, we need to consider the following:

- The total number of hospital beds available in the private sector;
- The current levels and nature of demand for hospital beds;
- How many bed days this next tier of medical scheme membership might require;
- The potential overall impact of these additional bed days; and
- The impact of further private hospital demand on resources other than hospital beds (doctors and nurses for example).

2. Data on the Supply of Private Hospital Beds

Information on the number of beds by type and geography was sourced from members of the Hospital Association of South Africa (HASA) and is included in the tables below. The data, which has been extracted from 2007, relates to hospitals owned by Netcare, Medi-Clinic, Life Healthcare and some of the largest independent hospitals belonging to the National Hospital Network (NHN).

In order to present stable results for occupancy, only hospitals open for the full 2007 year were included. For the sake of simplicity, day clinics, unattached operating theatres and mental health facilities have not been considered in this analysis.

Table 1: Number of acute private hospital beds by region

Region	Registered Beds
Gauteng	9,412
KwaZulu-Natal	2,972
Western Cape	3,252
Other	4,830
Overall	20,466

Source: HASA data supplied by Deloitte

The 20,466 beds available within those hospitals that were open for the full year translate into an availability of 7.5m bed days in a year (365 x 20,466).

While the content of this chapter is mainly concerned with hospital occupancy at a national level, consideration of the bed types and regional distribution is also important when drawing conclusions regarding spare capacity.

Importantly, the reader should note that acute beds of different types may not be substituted. For example, if a hospital has empty beds in a general ward, these cannot be used to treat high care or ICU patients as additional equipment and supervision are required in these cases. Similarly, it is not possible to cross-subsidise the supply of hospital beds in a region, except in instances regarding the shortest of travelling distances. Spare capacity in one area can be experienced at the same time as overloaded capacity in another. Due to the regulation of licenses for hospital beds, it is difficult to remove these distortions quickly by applying for new beds in areas with high levels of demand.

The observed overall occupancy may hide the underlying realities of bottlenecks in some areas and excess capacity in others. For example, patients requiring admission to a hospital in say Gauteng, where hospitals may be full on a given day, cannot simply be moved to hospitals in the Western Cape where there may be unoccupied beds.

3. The Demand for Private Hospital Beds

Data from the study commissioned by HASA and conducted by Deloitte for the purposes of the National Health Reference Price List (NHRPL) has been used in the graphics that follow to illustrate various aspects of demand for acute private hospital beds. The occupancy statistics shown correspond to the number of beds based on 2007 data for hospitals that were owned and open for the full year by the major hospital entities as shown above.

The definition of hospital occupancy used in this analysis is defined as follows:

$$\frac{\text{Number of Bed days used}}{\text{Number of Bed days available}}$$

The above definition is consistent with what was introduced in the Private Hospital Review of 2008.

If patients happen to arrive at a hospital which has no available beds and they are not admitted, then these patients are not counted in the number of bed days used in the formula. This means the actual level of demand is slightly understated.

Complete data on the number of bed days occupied by each hospital for each calendar day was not available, but rather the number of admissions and length of stay of these admissions, by day, by hospital. In order to get a reasonable approximation of the number of beds occupied per hospital per day, this data was used to create a simulation model for the actual length of stay.

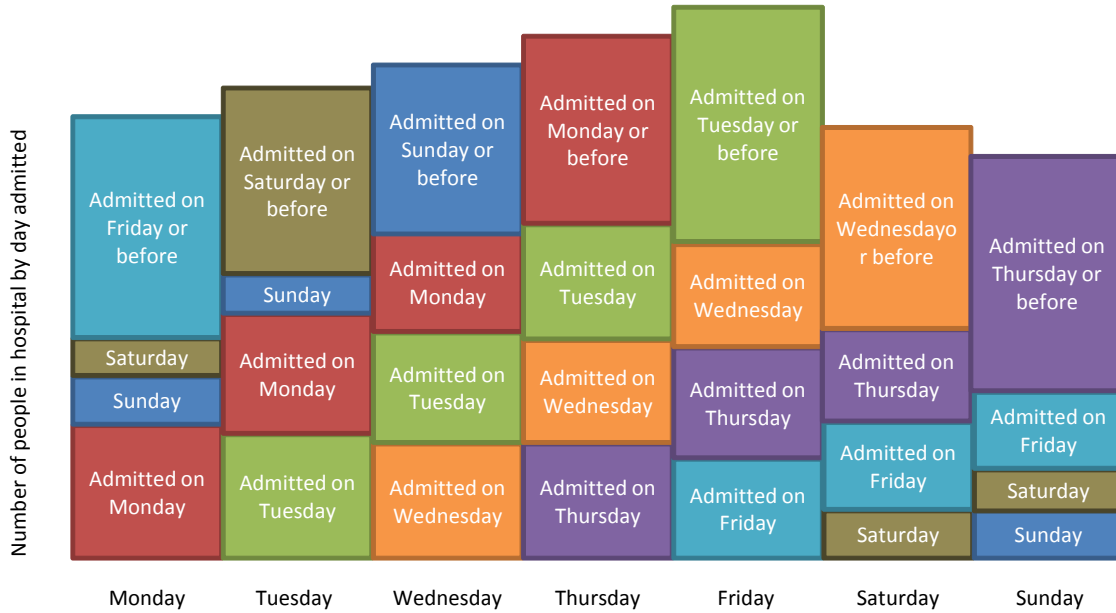
Based on the hospital occupancy definition above, when reviewing the number of hospital beds and bed days from the data, the aggregate overall hospital occupancy for 2007 was 62%. Information supplied by members of HASA indicates that occupancy increased notably in 2008 to 65.5%, continuing the trend from 2006 where occupancy was 60%. The growth in medical scheme membership from 7.1m in 2006 to 7.4m and 7.8m lives in 2007 and 2008 (quarter 3) respectively, explains at least some of these increases in occupancy rates.

Hospital occupancy varies widely according to each day of the week and month of the year. Especially low occupancy periods include weekends (17% below weekday occupancy) and December (27% below the full year's average). Varying monthly demand is driven at least in part by seasonal sicknesses (for example, the winter flu season) as well as the deferment of elective procedures due to doctors and patients being on holiday.

Demand differences per day of the week are influenced in the main by admitting doctors' preferences for not scheduling elective procedures over weekends and to a lesser extent on Fridays. Case mix changes over time also impact on bed day use (for example, more surgical compared to medical cases). As people age, they also tend to stay in hospital for longer, which again affects occupancy statistics.

Over and above these factors, there are random variations in the underlying demand for beds. We can also look at admission patterns another way, by considering when patients in hospital on a given day were admitted.

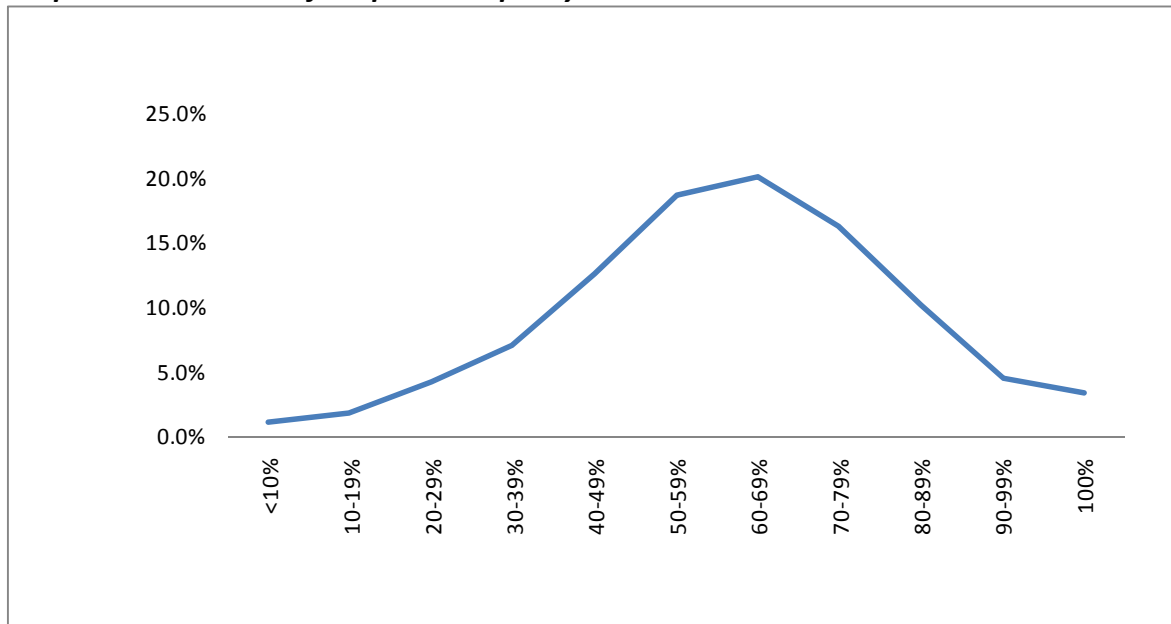
Graph 2: The pattern of hospital occupants by admitted day



Source: Adapted from Deloitte diagram on hospital admission patterns, based on data from the occupancy model discussed above

There is some debate as to whether demand can be ‘smoothed out’ for some of these variations. Such debates will not be discussed in detail in this chapter. The critical point in the discussion of available occupancy is the distribution of occupancy. This refers to how many beds are used on each day of the year. If we consider the number of beds available at each hospital on each day of the year in relation to the number of patients in each hospital on each day of the year, we can see how many hospitals are full on any given day. This data represents the distribution of hospital bed occupancy by hospital and is demonstrated in the graph below:

Graph 3: Distribution of hospital occupancy



The overall occupancy of 62% and the distribution above represents the status quo (for 2007) and will be referred to later as the 'base scenario'. The results in tabular form are as follows:

Table 2: Distribution of hospital occupancy

<i>Occupancy Level</i>	<i>Hospital Bed Days</i>
<10%	1.1%
10-19%	1.7%
20-29%	4.2%
30-39%	7.0%
40-49%	12.6%
50-59%	18.7%
60-69%	20.1%
70-79%	16.3%
80-89%	10.1%
90-99%	4.5%
100%	3.4%

The above figures depict for example, that a patient arriving at a hospital has a 20.1% chance of finding that hospital 60-69% full of patients, and a 3.4% chance of finding the hospital completely full.

4. Modelling Additional Demand for Hospital Beds

Coming back to the question then of the number of additional people who can be treated by the private sector, it is clear that there are three factors to consider:

- a) Size of the catchment population concerned. This population will come from those employed but currently not on a medical scheme;
- b) Number of bed days we would expect this new population to use per annum;

c) Available number of bed days in private hospitals.

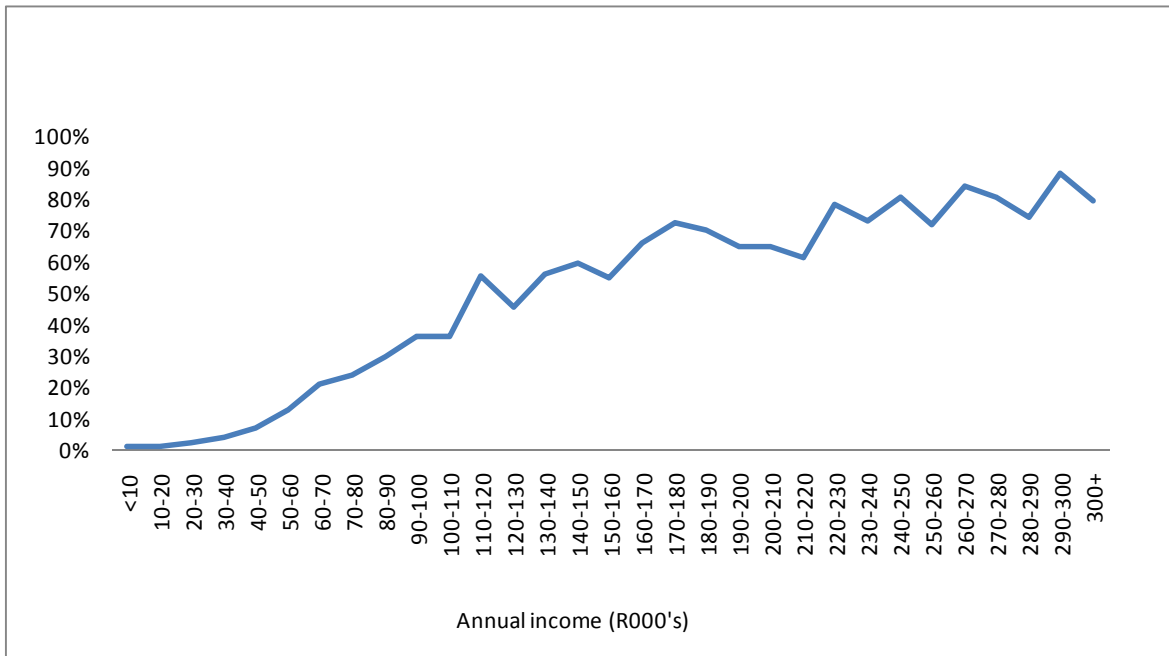
By varying each of the factors in turn, we are able to measure the impact on the overall average occupancy rates as well as the distribution of occupancy.

First however, we will consider how many more members expanded medical scheme coverage might bring.

4.1 The Population Size:

The size and characteristics of the target population – the next tier of potential medical scheme membership – can be derived from the Income and Expenditure Survey (IES) data available from Statistics South Africa. Using the 2006/2007 IES figures, a model can be constructed of South African households by income level, age profile and medical scheme participation. The proportion of households with at least one member on a medical scheme is highly dependent on income, as illustrated in the following graph:

Graph 4: Proportion of households with at least one medical scheme member, by annual income



Source: IES 2006

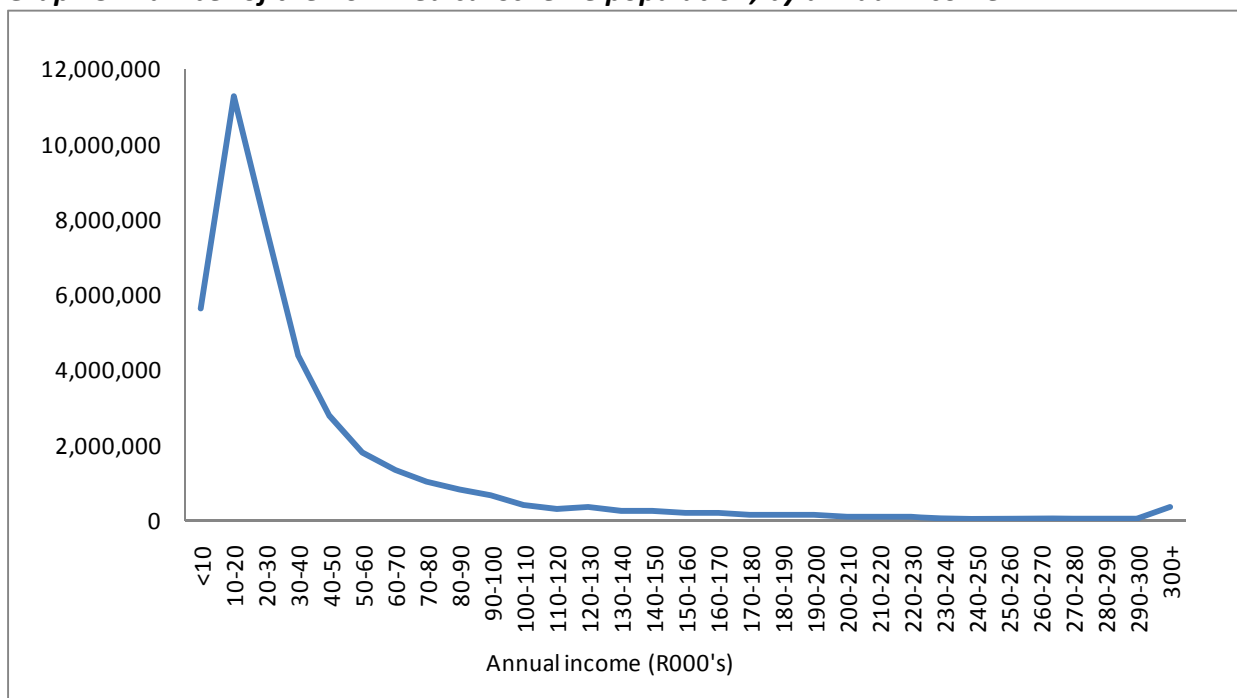
Those in households earning over R300 000 per annum who are currently not on medical schemes (roughly 20% of the population in that income category) would likely be the first candidates to enter into the medical scheme fold on compulsory membership at a certain income level.

The potential size of membership at varying levels of income cutoff is detailed in the table below. The size of the new market will be determined by the funding and tax models actually implemented. Key determining factors will also include the level of employer participation - whether participation is voluntary, incentivised or enforced -

and the extent of any tax subsidy for the purposes of funding part of medical scheme contributions.

The main issue slowing down medical scheme growth remains the skewed income distribution. The graph below illustrates just how skewed this income distribution is, in particular for non-medical scheme families.

Graph 5: Number of the non-medical scheme population, by annual income



Source: IES 2006

Considering the size of the population at various levels of income, we note the following:

Table 3: Potential new market size

Annual Household Income	Population in Households with no-one on a medical scheme
>400,000	164,993
300,000-399,999	143,737
200,000-299,999	388,286
130,000-199,999	1,090,980
80,000-129,999	2,410,952
Total	4,198,947

Many medical schemes already offer products aimed at those earning lower salaries by using income-based contributions as a cross subsidy mechanism. In terms of potential market size, the total population without medical scheme coverage living in households earning above R4 000 per month amounts to 8 million people. The fact that this market has not been significantly penetrated illustrates that the current extent of income cross subsidies is too low to bring new medical lives into the industry.

It is essential to also consider the risk profile of this expanded population and not just the size. The risk or demographic profile of the target population will have a material effect on the new level of demand for hospital beds.

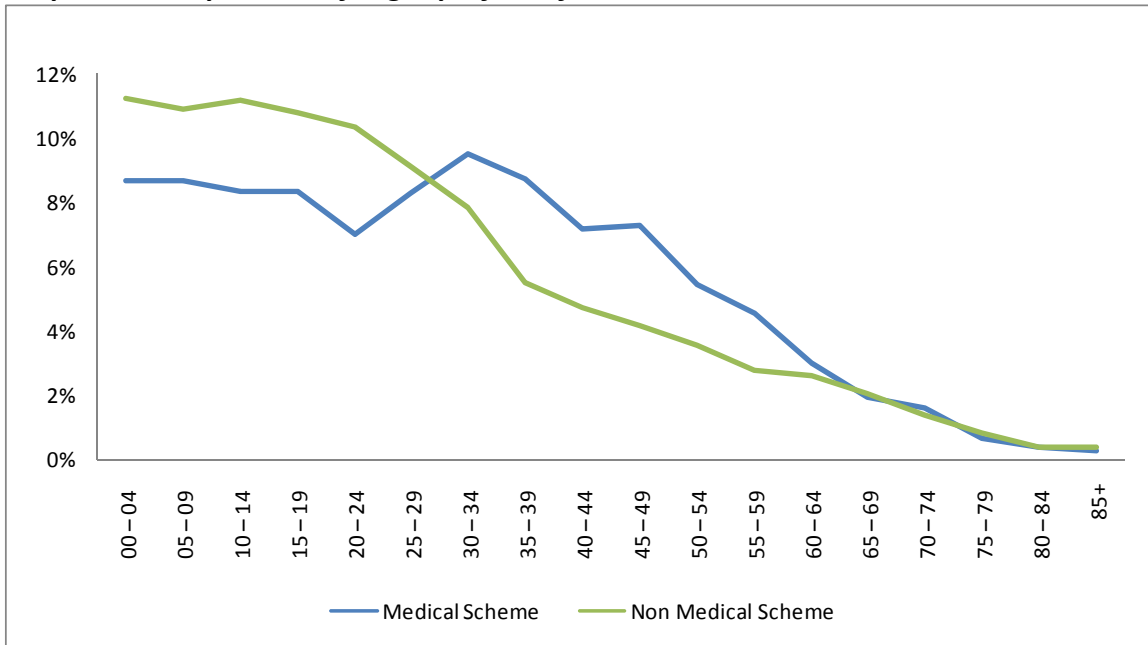
4.2 Population Characteristics:

The IES data can also be used to determine the risk profile of these non-medical scheme lives. In terms of overall population size, the results from the IES data indicate that 7.2m people out of a total population of 47.2m are part of households with at least one member of the family on a medical scheme. The number of beneficiaries reported in the 2007 Council for Medical Schemes (CMS) report is 7.4 million and 7.1 million in the 2006 report.

One would have expected the IES data to show a figure higher than 7.2m due to the fact that in many families with at least one family member who has cover, not all members are covered. These uncovered family members would be counted in the IES data. The difference could be due to timing as the IES was conducted over both 2006 and 2007 (the 12 months to March 2007). Random error in the sampling for the IES would also play a role in the comparison of results. Since the IES data indicates medical scheme lives in a similar range to that shown in the CMS' reports, any inaccuracies in the IES data have been ignored for the purposes of obtaining the broad estimates of population segments by income discussed in this chapter.

The demographic characteristics of the medical scheme and non-medical scheme population are considerably different.

Graph 6: Comparison of age profile of medical scheme & non-medical scheme



Source: IES 2006

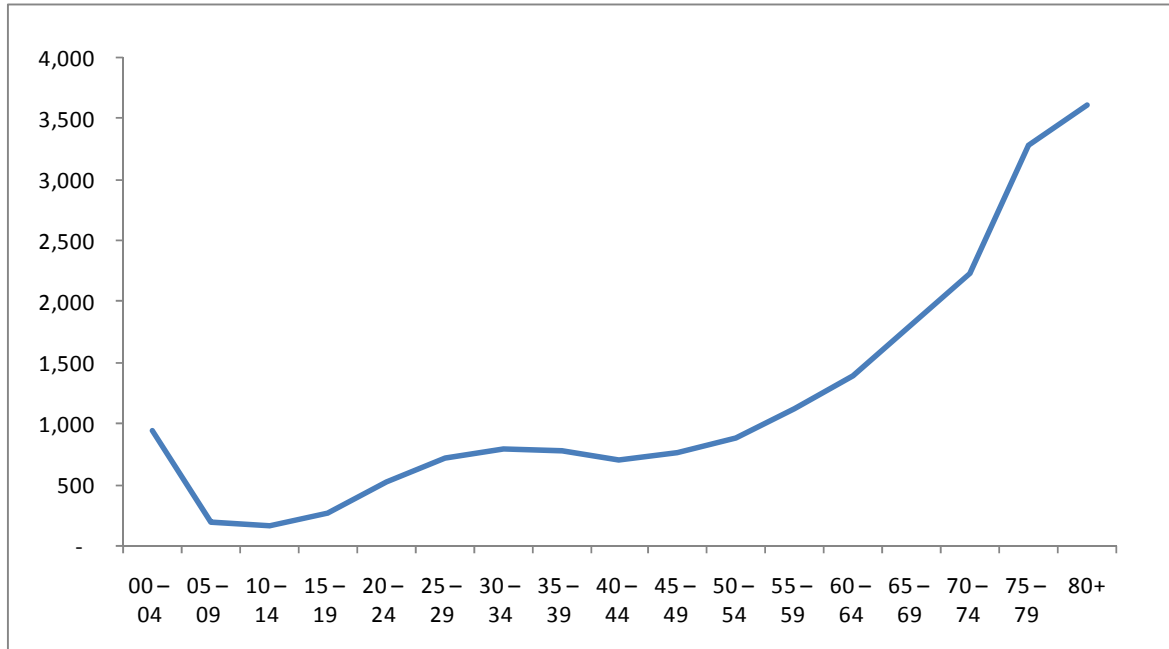
While there are slight differences in the age profile of the non-medical scheme population by income, these are not significant to the overall question of total spare capacity and so the overall age distribution of the non-medical scheme population has been used.

There is also some evidence from the IES data that the demographic profile of the non-medical scheme population differs by population group, but these differences have been ignored for the purposes of this study.

Data provided by Deloitte on admissions and length of stay by age band was applied to create the total number of bed days used by age band. This information was divided by the population in corresponding age bands in order to derive the number of bed days expected by age band.

The number of bed days per 1,000 for the medical scheme population by age is shown in the following graph:

Graph 7: Number of bed days/1 000 of the medical scheme population by age group



Source: medical scheme population read from graph CMS 2007 report, bed days from Deloitte HASA data adjusted for market share (82%).

By applying this data to the target population's age profile, we are able to estimate the additional number of bed days demanded. *The expected bed days per 1 000 population for the non-medical scheme population is 11% lower than that of the medical scheme population because of the younger age profile.*

It could be argued that the actual demand for this new population group will be different to - and probably lower than - that of the existing medical scheme population. No hospital utilisation experience for the South African population was available for this study and so we assumed the same level of demand by age band for the non-medical scheme population.

Assuming there is no change in demand for bed days by age group, if we apply the age profile of the potential new market, we should expect a 10.5% lower 'bed days per 1000 lives' level of demand.

We can thus calculate the estimated total demand for private hospital beds under a number of scenarios. The 'base scenario' refers to the 2007 level (62%) and distribution of hospital occupancy.

Table 4: Number of additional bed days per annum based on population size and demand assumptions

New Covered Lives	Demand Scenario				
	No adjustment	5% Lower	10% Lower	15% Lower	20% Lower
500,000	342,816	325,676	308,535	291,394	274,253
1,000,000	685,633	651,351	617,070	582,788	548,506
1,500,000	1,028,449	977,027	925,604	874,182	822,759
2,000,000	1,371,266	1,302,702	1,234,139	1,165,576	1,097,013

The table above shows that an additional 2 million medical scheme lives which use 10% fewer hospital bed days than their age profile predicts, will demand 1.2 million bed days per annum.

Translating this into higher overall hospital occupancy levels we note the following results:

Table 5: Additional overall occupancy based on population size and demand assumptions

New Covered Lives	Demand Scenario				
	No adjustment	5% Lower	10% Lower	15% Lower	20% Lower
500,000	4.6%	4.4%	4.1%	3.9%	3.7%
1,000,000	9.2%	8.7%	8.3%	7.8%	7.3%
1,500,000	13.8%	13.1%	12.4%	11.7%	11.0%
2,000,000	18.4%	17.4%	16.5%	15.6%	14.7%

Combining these results to the actual 2007 overall occupancy of 62%, we see the following expected overall occupancy figures.

Table 6: Revised overall occupancy based on population size and demand assumptions

New Covered Lives	Demand Scenario				
	No adjustment	5% Lower	10% Lower	15% Lower	20% Lower
500,000	66.7%	66.5%	66.3%	66.1%	65.8%
1,000,000	71.3%	70.9%	70.4%	70.0%	69.5%
1,500,000	75.9%	75.2%	74.5%	73.9%	73.2%
2,000,000	80.5%	79.6%	78.7%	77.8%	76.8%

In other words, for an additional medical scheme population of 2 million, assuming the hospital usage of this new population is 15% lower than expected based on their age profile, we would expect overall hospital occupancy to increase from 62% to 77.8%.

As mentioned, it is not only the overall average occupancy that is important, but also the distribution of the occupancy.

4.3 The Impact of Additional Demand:

Additional levels of demand and higher occupancy will impact on the distribution of occupancy.

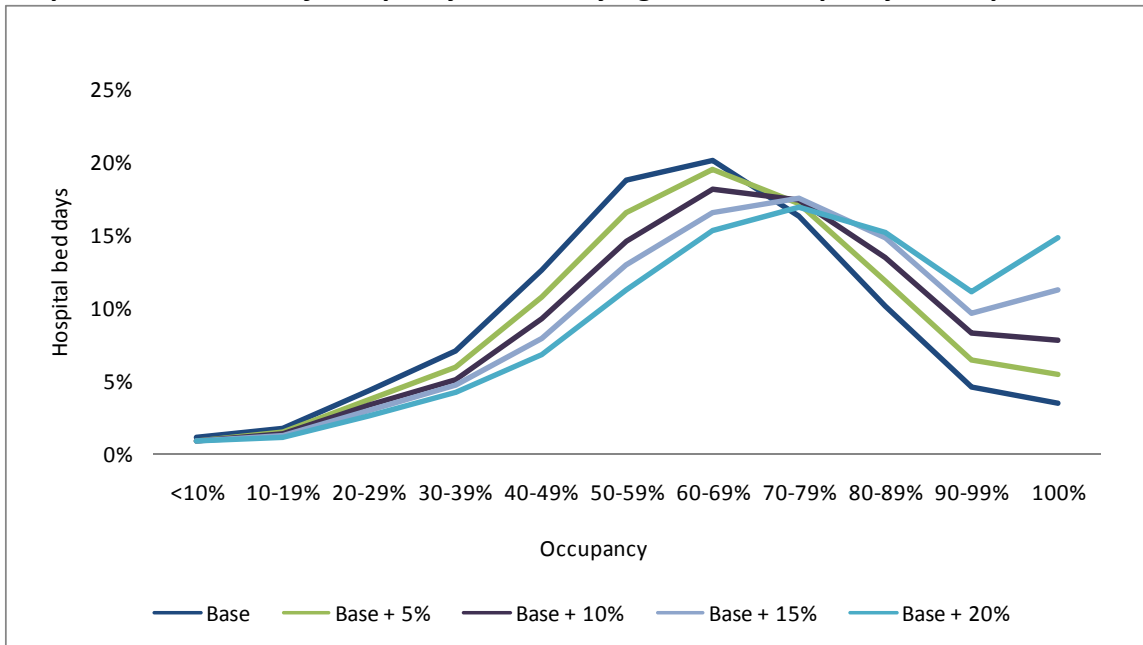
The key question is just how full hospitals will become with the additional patients. Given the variability in occupancy shown above, it is not simply an increase in the overall occupancy that is the issue, but the impact on the distribution of occupancy.

It is undesirable in a private care setting to have waiting lists for admission to hospital. As mentioned in the Private Hospital Review, 2008, 100% occupancy is neither practical nor possible. High occupancy rates (over 80%) place strain on the hospital support services (cleaning, linen, catering and others), increase pressure on nursing procedures and patient care, increase the risk of adverse events (skin lesions, falls, medication errors and the like) and also present challenges for infection control.³²

It must be borne in mind that overall occupancy figures are averages over the widely varying rates by day, week and month. The approach taken here is to quantify the impact on 'full' hospital days when occupancy levels are increased.

The scenarios illustrated below are based on an increased occupancy of 5%, 10% and 15% (for clarity, these increases are in relative and not absolute terms). In other words, 10% additional occupancy puts overall occupancy at $62\% \times 1.1 = 68.2\%$

Graph 8: Distribution of occupancy under varying overall occupancy assumptions



Note: Occupancy increases are in relative and not absolute terms

As can be observed from the graphs above, shifting overall levels of occupancy will have a dramatic impact on the distribution of occupancy, and in particular, the probability of

³² Private Hospital Review, 2008, chapter 10

100% occupancy. The distribution of hospital occupancy shifts to the right each time overall occupancy is increased, meaning more hospitals are full on more days of the year.

The table below shows the results:

Table 7: Occupancy stats over 80%, 90%, and 100% of 2007 registered beds under each scenario

	Base (62%)	Base + 5%	Base + 10%	Base + 15%	Base + 20%
Over 80%	18%	24%	30%	35%	41%
Over 90%	8%	12%	16%	21%	26%
100%	3%	5%	8%	11%	15%

In other words, with current levels of registered beds, if the demand for private hospital beds increased by 15%, the probability of patients arriving at full hospitals would almost double from 18% to 35%. Under this scenario, one in ten patients arriving at a private hospital on a given day would find no beds available (100% occupancy).

Putting these figures in context in terms of the number of new medical scheme lives and taking data from table 5 above, we expect that 2 million additional lives with a 15% lower level of demand than the current medical scheme population are expected to increase overall occupancy by 15.6%. Another way of illustrating the impact (from table 7) is that one in five patients arriving at a hospital will find it over 90% full and one in nine patients will find it full.

5. Impact of Greater Demand for Private Hospital Beds on Other Private Sector Resources

Any change in demand for private hospital beds has an impact on the demand for related services such as doctors and nursing care. Some of these services are embedded within the private hospitals themselves – nursing for example, while others are completely independent such as doctors and physiotherapists.

The current shortage of doctors in South Africa in the public and private sectors, coupled with the long development lead-time for specialists in particular, is of great concern and will need to be addressed if any semblance of quality of care standards are to be maintained alongside an increased demand for private hospital care.

Of equal concern is the shortage of nurses. It is generally acknowledged that there are serious nursing shortages in South Africa, particularly in the public sector. The demand for nursing services is almost perfectly correlated with the demand for hospital beds for anything greater than a handful of incremental admissions. Using the model and results from above, we can therefore provide an estimate of the additional number of nurses required to keep nursing ratios at current levels.

Table 8: Scenarios for additional nursing requirements

New Covered Lives	Demand Scenario				
	No adjustment	5% Lower	10% Lower	15% Lower	20% Lower
500,000	1,043	991	939	887	835
1,000,000	2,087	1,982	1,878	1,774	1,669
1,500,000	3,130	2,974	2,817	2,661	2,504
2,000,000	4,174	3,965	3,756	3,547	3,339

In other words, if an additional 2 million lives are covered by medical schemes and they demand 10% lower bed days than their age profile predicts, the private sector will need 3 756 more nurses to keep nursing ratios what they are now.

6. Conclusion

South Africa's national health system needs to find a way of improving access to critical health services, including hospital services. To this end, it would be rational to make use of spare capacity within the private hospital sector. The analytical modeling results outlined in this chapter demonstrate that capacity constraints are perhaps greater than expected.

In order to avoid bottlenecks and waiting lists at hospitals, innovative solutions regarding the level and patterns of admissions will have to be investigated, which will likely be difficult given the short supply of doctors.

The question of hospital bed capacity is but one component of the greater issue around health resources. Any increased demand for private hospital beds will have to be met with an increase in supply in many key medical personnel.

CHAPTER 4

Financing and Benefit Incidence Analysis in the South African Health System: An Alternative View Finding Significant Cross Subsidisation in the Health System from Rich to Poor

*Authored by Dr Nicola Theron and Johann van Eeden, ECONEX
and Barry Childs, Lighthouse Actuarial Consulting*

EXECUTIVE SUMMARY

This chapter provides an alternative view of the financing and benefit incidence analysis in South Africa's health system. A seminal paper on this topic was published recently by Ataguba and McIntyre (2009). Key issues analysed in that paper are discussed in this chapter. The Ataguba and McIntyre (A&M) paper is of a very technical nature, and by necessity this chapter, which deals with some of the main conclusions in the A&M paper, is also technical.

Nonetheless, the central issue is straightforward, i.e. that any findings depend on the specific set of assumptions used and the methodologies employed to analyse an issue. This chapter demonstrates that if one were to analyse the financing and benefit incidence in the South African health sector using alternative assumptions and methods, the results would differ significantly from those derived in the A&M paper.

The A&M paper – although a first attempt at analysing financing and benefit incidence – draws very definitive conclusions. The five main conclusions of the A&M paper may be summarised as follows:

1. The progressivity of income tax is offset to a considerable extent by the regressivity of other taxes;
2. Benefits from healthcare are not distributed according to the need for healthcare;
3. The distribution of funding contributions across socio-economic groups is very similar to the distribution of healthcare benefits;
4. There is a general lack of cross-subsidisation in the overall health system; and
5. The key source of inequity in the South African health system is the lack of adequate risk cross-subsidies.

All of these conclusions are discussed in detail in this chapter. From a policy perspective, the most important conclusion is the finding that there is a general lack of cross-subsidisation in the overall health system. This conclusion is based on very specific assumptions on the progressivity or regressivity of different types of taxes, but more importantly, on an assumption that corporate tax is spread 50:50 between households and shareholders.

There are however alternative assumptions that may be made, based on economic theory as well as the structure of the South African economy, that will yield different results.

The table below summarises the results of the A&M paper and compares this to an alternative scenario calculated from the A&M data.

The alternative scenario presented in column 3 in the table below is compared to the benefit incidence as calculated in the A&M paper. The methodological problems with the benefit incidence analysis will be explored in more detail below.

Table 1: Alternative scenarios of total healthcare financing

	Total Health Financing Incidence (A&M paper)	Total Health Financing Incidence (alternative scenario)	Total Health Benefits
Quintile 5 (richest)	39.0%	82.3%	36.0%
Quintile 4	23.8%	11.4%	23.0%
Quintile 3	13.6%	3.5%	14.8%
Quintile 2	12.0%	1.8%	13.7%
Quintile 1 (poorest)	11.6%	1.0%	12.5%
Total	100%	100%	100%

Source: A&M paper, ECONEX calculations

Clearly, under an alternative scenario in which the richest quintile of the population finances 82.3% while receiving 36.0% of the healthcare benefits, there must be significant cross-subsidisation in the South African health sector.

1. Introduction

In the provision of any public goods, it is important to analyse the finance and benefit incidence of the product or service. The health sector is generally regarded as one in which government intervention is needed to ensure a more equitable allocation of scarce resources. Determining who pays and benefits from health expenditure is however not a straightforward exercise. This is a valuable field of research and the recent contribution by John Ataguba and Di McIntyre (2009) is therefore an important step in the right direction. In designing proper future health policies, it is important to understand the current financing and benefit incidence in South Africa. Ataguba and McIntyre published their findings as a discussion paper with the title: '*Financing and benefit incidence in the South African health system: Preliminary results*'.³³

The aim of this chapter is to test the sensitivity of the findings of this paper to the assumptions and methods used and provide an alternative set of results.

³³Ataguba, J. & McIntyre, D. (2009). 'Financing and benefit incidence in the South African health system: Preliminary results. Health Economics Unit, School of Public Health and Family Medicine, University of Cape Town. Working Paper 09-1. January 2009.

The chapter also suggests areas where improvements could be made to the methodology in order to gain a more accurate picture of equity in the South African health system.

2. Main Conclusions of the A&M Paper

At the outset, it is worthwhile stating the main conclusions of the A&M paper. The paper deals firstly with the financing side, next with the benefit component and then goes on to compare financing and benefit incidence.

In what follows, alternative methodologies have been used and the sensitivity of the conclusions will be demonstrated by indicating alternative outcomes based on different methods.

The main conclusions of the A&M paper are:

- a. The progressivity of income tax is offset to a considerable extent by the regressivity of other taxes;
- b. Benefits from healthcare are not distributed according to the need for healthcare;
- c. The distribution of funding contributions across socio-economic groups is very similar to the distribution of healthcare benefits;
- d. There is a general lack of cross-subsidisation in the overall health system; and
- e. The key source of inequity in the South African health system is the lack of adequate risk cross-subsidies.

Each of the following conclusions will be examined to see whether an alternative interpretation of the data is possible.

2.1 Financing Incidence Analysis:

Conclusion A&M 1: Progressive personal income tax is offset by regressivity of other taxes

Taxes can be classified as either progressive or regressive. Under a progressive system of taxation, the tax rate increases as the taxable amount eg. income or consumption increases, whereas under a regressive system of taxation, the percentage paid of total income increases as income decreases. Income tax is a popular example of a progressive tax wherein individuals with a higher income pay a higher tax rate. A general sales tax is usually assumed to be regressive, as the poor spend a larger percentage of their income on such a tax.

In the A&M paper, the way in which taxes are treated is central to the conclusions on financing incidence. The authors state in their executive summary (p. ii) that: *“Although personal income tax is very progressive, excise taxes and the fuel levy are regressive and VAT is almost proportional. The progressivity of personal income tax is offset to a considerable extent by the regressivity of other taxes”*. The *“other taxes”* referred to are excise taxes, fuel levies, value added tax (VAT) and corporate income tax.

The results of A&M's financing incidence analysis show that excise taxes, fuel levies and value added taxes are proportional to consumption for the first four quintiles and only show regressive tendencies when one includes the 5th expenditure quintile. Of these taxes, the components that are most regressive in nature, namely excise taxes and fuel levies, are the smallest contributors to the overall tax structure.

The statement by A&M that: *"The progressivity of personal income tax is offset to a considerable extent by the regressivity of other taxes"* is crucially dependent on the portion of *corporate tax* apportioned to each expenditure quintile.

Regarding how corporate tax is apportioned to individuals, the basic premise of the A&M article is that *"...it is not possible to determine with complete accuracy the distribution of corporate tax across socio-economic groups"* (2009:11). Since it is this distribution of corporate tax that drives much of the conclusions on financing incidence, it is worth considering the issue in some more detail.

The A&M paper suggests three scenarios regarding the apportionment of corporate tax. The three scenarios produce very different results with regard to the distribution of income tax across income groups, depending on the extent of market (pricing) power assumed. The A&M paper also suggests that more market power allows the company in question to shift a greater portion of the corporate income tax burden to consumers through increased pricing. The three scenarios considered by the A&M paper are the following:

- All corporate tax is shifted to consumers (monopoly market situation);
- Shareholders bear the full burden of corporate tax (competitive market situation); or
- A mixture between the first two scenarios (i.e. 50% is shifted to consumers and shareholders bear 50%).

A&M chose to apply the third of the abovementioned scenarios to their financing incidence analysis, stating that: *"The corporate structure in South Africa certainly lends itself to opportunities to shift corporate taxes onto consumers, but the exact extent cannot be determined. For this reason, we have assumed the 50%:50% share of corporate tax burden between consumers and shareholders (as reflected in Figure 2) to reflect overall tax incidence in the rest of the report."* (A&M: 13)

Alternatives to this position are considered firstly by looking at some economic theory related to corporate tax incidence and secondly, by examining the structure of the South African economy. As a final point on the consideration of tax, the measure used to distribute corporate tax across households in the A&M paper will be discussed.

a) Economic theory on corporate tax incidence

Discussions surrounding the incidence of corporate tax often use the work of Harberger (1962)³⁴ as a theoretical base. In Harberger's original model, corporate

³⁴ See Harberger, A.C. (1962) *The Incidence of the Corporation Income Tax*. Journal of Political Economy 70(3), June: 215-240.

tax was characterised as an additional tax on capital income, above and beyond standard income tax³⁵.

This simplified model showed, *firstly*, that capital would bear the entire burden of a corporate tax, i.e. it was not possible to shift the burden to consumers. A *second* major conclusion from the initial Harberger model was that a corporate tax was borne by all capital owners and not just the owners of corporate capital³⁶. Theoretical and empirical investigations into corporate tax incidence have evolved substantially since the initial contribution by Harberger. Increasing attention has been given to areas such as the differences between short run and long run distributions, dynamics between time periods and the effect of open economies on corporate tax incidence.³⁷ Nonetheless, in a review of the theory on corporate tax incidence, Auerbach (2005) makes the following three broad conclusions regarding the incidence of corporate tax:

- '1. For a variety of reasons, shareholders may bear a certain portion of the corporate tax burden. In the short run, they may be unable to shift taxes on corporate capital. Even in the long run, they may be unable to shift taxes attributable to a discount on "old" capital, taxes on rents, or taxes that simply reduce the advantages of corporate ownership. Thus, the distribution of share ownership remains empirically quite relevant to corporate tax incidence analysis, though attributing ownership is itself a challenging exercise.*
- 2. One-dimensional incidence analysis distributing the corporate tax burden over a representative cross-section of the population can be relatively uninformative about who bears the corporate tax burden, because it misses the element timing.*
- 3. It is more meaningful to analyze the incidence of corporate tax changes than of the corporate tax in its entirety, because different components of the tax have different incidence and incidence relates to the path of the economy over time, not just in a single year.'*

Economic theory, therefore, suggests that (1) calculating corporate tax incidence requires a multifaceted approach involving different time periods, dynamics and the changing structure of economies and (2) that the reigning capital structure in a particular economy is still likely to have an influence on the distribution of corporate tax incidence.

b) Corporate tax incidence: the structure of the South African economy

Apart from the economic theory on corporate tax incidence, there is also the structural reality of the South African economy that needs to be considered. In their representation of the South African economy, the A&M paper suggests that, as a

³⁵ Harberger divided the US economy in two sectors based on the type of business activity these companies were predominantly engaged in, either corporate or non-corporate. Based on this characterization corporate tax was seen as additional levy in addition to the individual income tax paid by both sectors.

³⁶ See Auerbach (2005) *Who bears the corporate tax? A review of what we know* . NBER Working Paper 11686, October: 1-52 at 8.

³⁷ See Auerbach (2005)

group, companies in the South African economy find themselves halfway between monopoly pricing power and perfect competition.

This assumption implies that all South African firms have 50% of the price setting power of a monopolist. This could also be equivalent to stating that half of all South African firms (in terms of sales volumes) have monopoly price setting power, while the other half find themselves in a fully competitive market situation.

It is unrealistic to work with an assumption that 50% of all South African companies possess the power to set prices, independently of their competitors.

Also, with regards to the structure of the South African economy, if one assumes that corporate tax incidence is borne predominantly by capital owners, then it should be kept in mind that only a small portion of the South African population has any form of ownership (even in the form of pension funds) due to the size of the informal sector and the high rate of unemployment in the country. As a result, according to economic theory, the lower income and expenditure quintiles of the South African population would bear a relatively small portion of the corporate tax incidence.

The A&M paper assumes that corporate tax is distributed across households, based on reported consumption expenditure on manufactured goods. Manufactured goods are however just one category that produce corporate tax. Other 'service related categories' such as insurance and financial services, telecommunications, etc. also contribute to corporate taxes and the incidence might very well be higher among the higher income quintiles.

These considerations would seem to indicate that a 50/50 split of corporate tax between shareholders and consumers is not progressive enough given the corporate and capital ownership landscape in South Africa. Since this has a material impact on the financing incidence findings in the paper, as illustrated by the various scenarios considered, it is recommended that more work be done in order to present a reasonable spread of corporate tax. It would appear that a more progressive spread than 50/50 be used as the central basis.

2.2 Benefit Incidence Analysis:

Conclusion A&M 2: Benefits from healthcare are not distributed according to the need for healthcare

Another important conclusion reached in the A&M paper is that the share of benefits received is not in line with the share of health needs across socio-economic groups (see Figure 13 in the A&M paper). In general, they indicate that the largest share of benefits accrue to the richest groups (high income quintiles), but that the need is more concentrated amongst the poorest quintiles. While the general conclusion is correct, i.e. that the higher income groups receive proportionally more benefits, the issue is the

degree of this disproportionality. It was not possible to verify the findings of the A&M paper due to the unavailability of the dataset.

However, there are serious problems with the measure used to determine need, and another method will in all likelihood yield different results.

The A&M article makes use of the self-assessed health (SAH) status method to measure the need for health care and describes it as follows: *“Household surveys in high-income countries which aim to measure health need rely on self-assessed health (SAH) status. This can take the form of a ‘crude’ measure of health need (eg. how would you describe your current health status, with a number of options ranging from excellent to very poor)”* (p.10): *“The SACBIA survey collected self-assessed health status data, through a simple rating question. Even though the categories in this measure (e.g. excellent, good, fair, poor, very poor) do not tell us that there is equidistance between categories (O’Donnell et al., 2008), the SAH measure is still useful in understanding the disparities that exist between individuals’ health status.”* (p.10)

The authors acknowledge that self-reported illness is a poor measure of health need (2009:10). This is a subjective method of measuring need. The information in the measure is diluted further by assigning a dichotomous variable to the self assessed ‘need’, by assigning one value (indicating ‘good health’) to the combined category of ‘good and excellent’ and another value (indicating ‘bad health’) to the combined category of ‘fair, poor and very poor’. Clearly, whether ‘fair’ is classified as ‘good and excellent health’ or as ‘bad health’, will influence the results of the need assessment. There is also another problem with this approach.

Assessing health needs based on the approach used by A&M tries to provide some picture of relative health need, based on how people feel about their health status. If 70% of those in, say, quintile 5 report poor health and 20% of those in quintile 4 report poor health, it is very likely that quintile 5 has greater health needs than those in quintile 4. But there is a problem with such a simple conclusion, i.e. this method assumes that the distribution of types of ill-health is similar across quintiles. More pertinently it assumes that the average cost of treating an individual is the same, irrespective of the quintile in which he/she belongs to. To drive this point home, let us suppose that most of the people in the 70% of quintile 5 that are in poor health require low-cost treatments (on average R100 per case). If the 20% in quintile 4 require high-cost treatment (on average R1000 per case), then quintile 4 has a greater need for healthcare resources than quintile 5. It is quite plausible that people of different socioeconomic classes could generally suffer different types of illnesses.

On the basis of the self-assessed health status method and the classification of ‘fair’ under the category ‘bad health’, the paper then proceeds to relate this measure of the need for health-care to their calculated benefit incidence for healthcare (1990:20), concluding that *“It is indisputable that benefit incidence in South Africa is inequitable; benefits from health care are not distributed according to the need for health care (see Figure 13). This suggests that the key source of inequity in the South African health system is the lack of adequate risk cross-subsidies.”* Given the importance of the

measure of healthcare usage versus the need for care in equity considerations, the finding that the results of the study are indisputable seems too conclusive a result given the crude nature of the measures used.³⁸

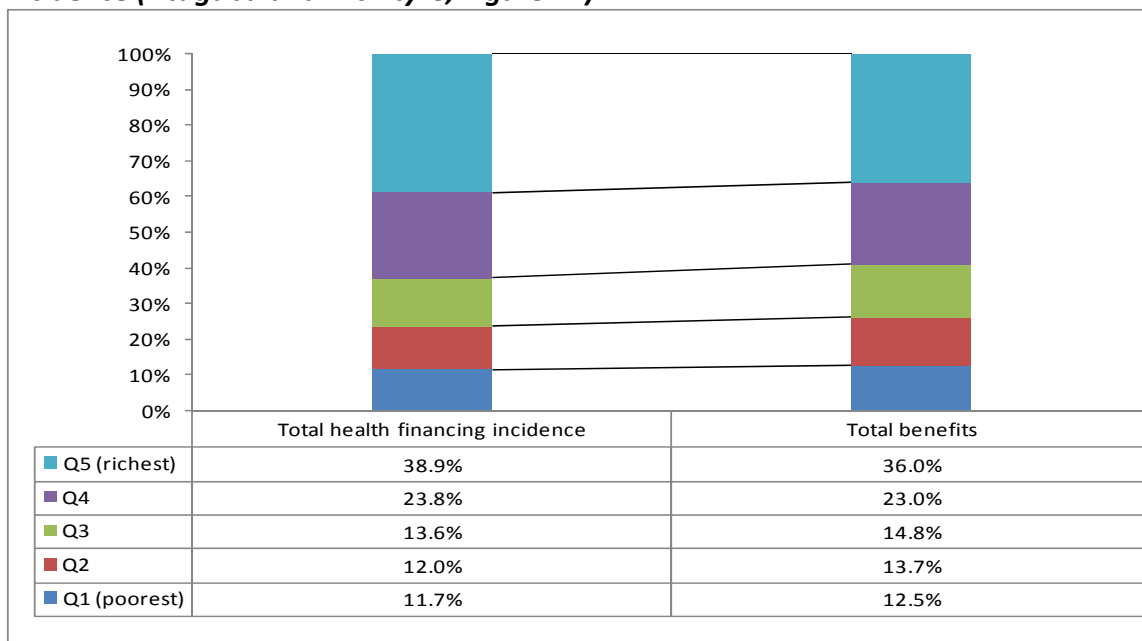
2.3 Comparison of Financing and Benefit Incidence Analysis:

Conclusion A&M 3: The distribution of funding contributions across socio-economic groups is very similar to the distribution of healthcare benefits.

Having pointed out in the previous sections that both the finance incidence and benefit incidence analysis could have different results if different methods were used, in this section the methodology (and values) derived by A&M in their financing- and benefit incidence analysis will be taken as given. Proceeding on this basis, serious questions remain regarding the eventual comparison of financing incidence and benefit incidence as per Figure 14 (p.19) of the A&M paper.

Figure 14 of the A&M paper is reproduced as Figure 1 in the current document and can be seen below:

Figure 1: Comparison of total healthcare benefits and total healthcare financing incidence (Ataguba and McIntyre, Figure 14)



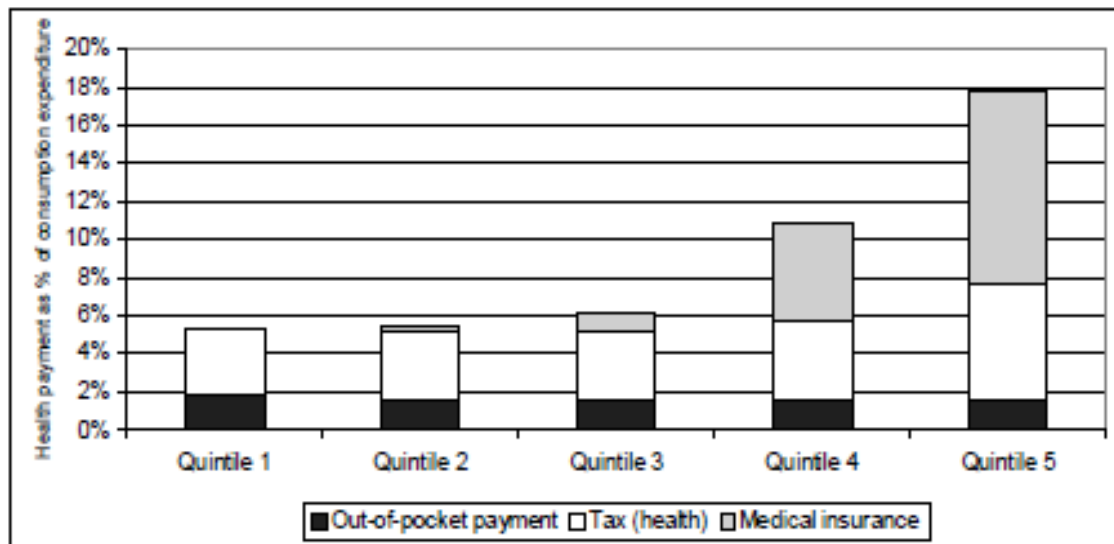
Source: Adapted from Ataguba and McIntyre, Figure 14 (p.19)

The main conclusion of the paper – ‘you get what you pay for’ – is derived from this graph. In other words, the distribution of funding contributions across socio-economic groups is very similar to the distribution of health care benefits.

³⁸ The lack of cardinality in the measure, i.e the fact that ‘bad’ or ‘poor’ health cannot be assigned specific values, also limits the extent to which the measure of need can be compared to the benefit incidence.

Values contained in the financing incidence side of Figure 1 are based on the results of A&M’s financing incidence analysis as per Figure 6 (p.15) of their paper. Figure 6 of the A&M paper is reproduced as Figure 2 in this chapter.

Figure 2: Distribution of total health financing incidence in SA (Ataguba & McIntyre, Figure 6)



Note: 11.55% of total tax funds are allocated to health (National Treasury, 2007), as the basis for the health tax incidence

Source: Ataguba and McIntyre (2009: 15)

Although the underlying data was not available, it was possible to reconstruct the A&M methodology from Figure 2 above. Reading the values from Figure 2 one can approximate “health payments as % of consumption expenditure”. Expressing each of these derived values as a percentage of the sum of the individual expenditure percentage (approximately 46%) of consumption expenditure spent on health (according to Figure 6 of the A&M paper), one can derive the values contained in Figure 14 of the A&M paper (financing incidence). It appears that A&M computed each expenditure quintile’s contribution to total health financing by expressing the quintile’s *percentage* expenditure allocated to health financing as a *percentage* of the sum of all five quintile’s *percentage* expenditure on health financing i.e. approximately 46%. One should rather look at the absolute Rand value spent on health to make meaningful conclusions on the financing incidence.

The A&M method of computation would only be appropriate if the total consumption expenditure of each expenditure quintile were identical. In order to calculate a given quintile’s contribution to total health financing, the preferred approach would be to express this quintile’s *Rand* contribution as a percentage of total *Rand* contributions. A given quintile’s *Rand* contribution (table 2, column 4) can be calculated by multiplying the *percentage* of their expenditure (table 2, column 3) allocated to health care with their total *Rand* expenditure (table 2, column 2). Table 2, column 5 expresses each quintile’s contribution to health financing in percentage terms.

As the expenditure in the various quintiles differs substantially, this dramatically skews the health financing distribution toward the higher quintiles.

Table 2: Financing incidence of healthcare in SA

Income quintile (1)	Mean individual expenditure by quintile (per annum) (IES, 2005/2006:31) (2)	% Expenditure allocated to health financing (3)	Mean individual value of health financing by quintile (per annum) (4)	Health financing contribution per quintile as % of total health financing (5)
Q1	R 7,830	5.5%	R 430.65	1.0%
Q2	R 15,154	5.5%	R 833.47	1.8%
Q3	R 24,246	6.5%	R 1,576.02	3.5%
Q4	R 47,163	11.0%	R 5,187.93	11.4%
Q5	R 213,983	17.5%	R 37,447.03	82.3%
Total	R 308,376	46%*	R 45,475.10	100%

*Sum of quintile percentages

Source: A&M paper, ECONEX calculations

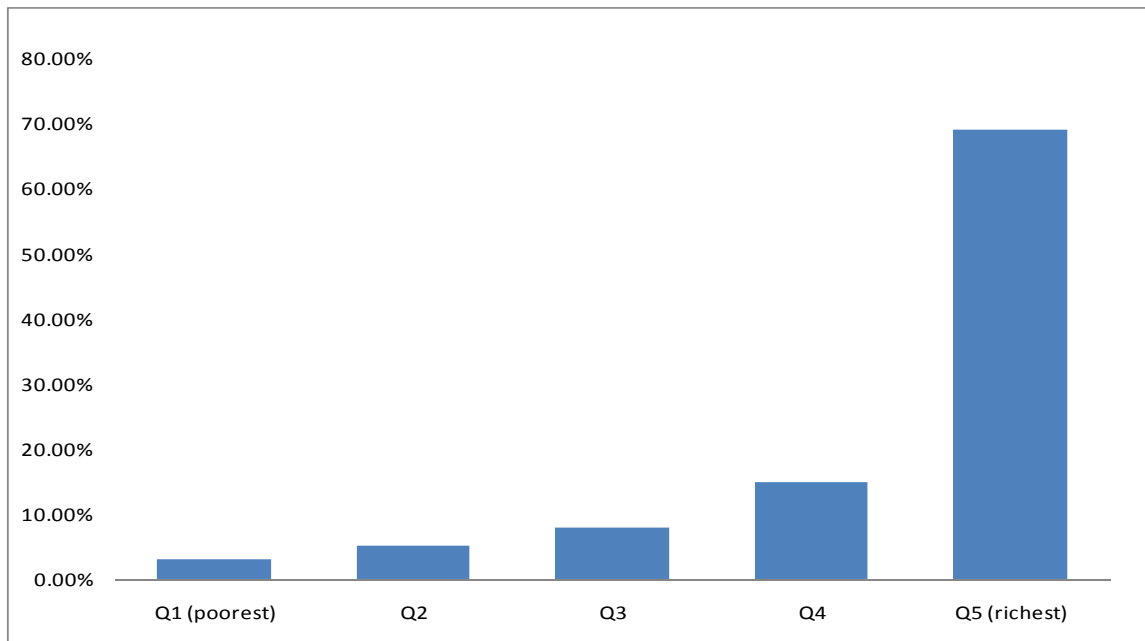
1. Income quintiles, with Q1 being the poorest 20% of the population and Q5 the richest.
2. The 2005/2006 Income and Expenditure Survey³⁹ lists the mean expenditure per annum for South Africa's ten consumption expenditure deciles categories (i.e. nominal expenditure). In Table 2 above, consumption expenditure values per quintile were calculated as the mean of each two corresponding expenditure deciles.
3. These values were estimated ('read') from Figure 6 of the A&M paper.
4. These figures represent the actual value spent by each expenditure quintile on health and is derived by multiplying the percentage of consumption expenditure spent on health by the mean consumption expenditure for each quintile.
5. Finally, we derive the health financing contribution by expenditure quintile by expressing the values contained in column four of table 2 as a percentage of the total of this column (R45,475.10).

Whereas it appears in the A&M paper that the values in column 3 were expressed as a percentage of the sum (46%), the correct method would be to express the value of health financing in each quintile as a percentage of the total value, as was done in the table above. The values in the last column of Table 2 therefore present the true picture of total health financing incidence in South Africa.

As another reasonability test for our calculations, one can use information on the general distribution of household expenditure across quintiles. The following graph indicates the expenditure distribution per quintile, based on the IES data (2005/2006).

Figure 3: Distribution of household expenditure across quintiles, IES 2005/2006

³⁹ Income and Expenditure Survey, 2005/2006:31.



Source: IES 2005/2006

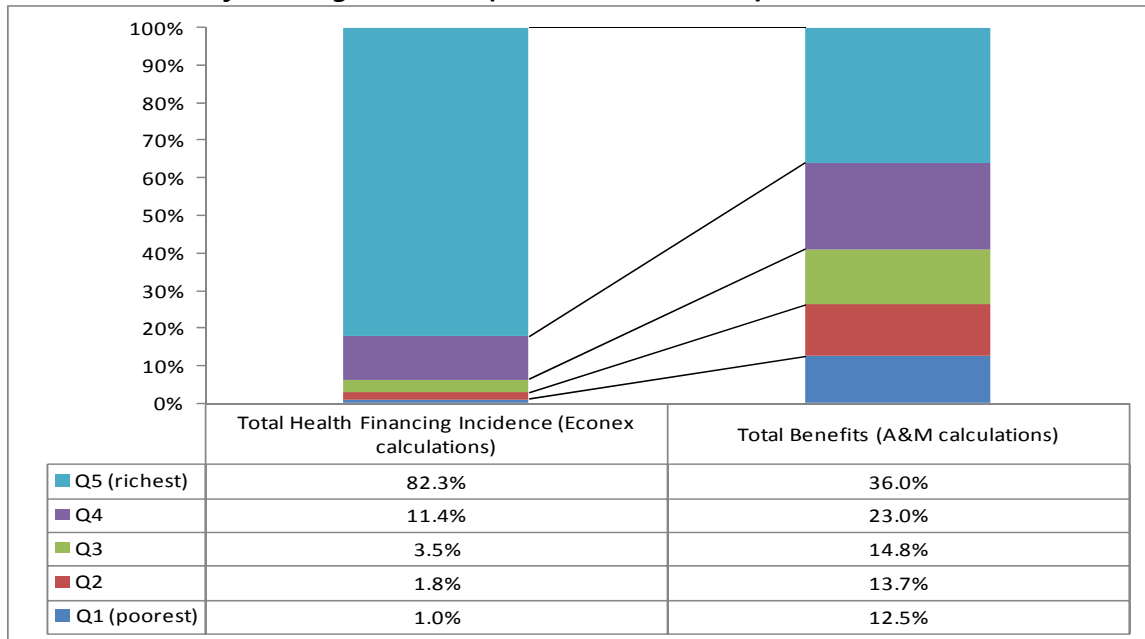
Given the data in the graph above, an intuitive explanation of the preceding analysis would be the following: As the top expenditure quintile (Q5) is responsible for 69% of all expenditure by South African households and spends close to 18% of this on health, while the bottom expenditure quintile (Q1) is responsible for only 3% of all expenditure and spends less than 6% of this on healthcare it does not seem plausible that their respective contributions to health-care financing should be equal to 38,93% (Q5) and 11,68% (Q1) respectively, as concluded in the A&M paper. In the case of Q5 this appears to be a vast under estimation, while in the case of Q1 this appears to be a vast over estimation.

Based on the above, it is therefore shown in the conclusion reached by A&M that the distribution of funding contributions across socio-economic groups is very similar to the distribution of healthcare benefits, is not correct.

Conclusion A&M 4: There is a general lack of income cross-subsidisation in the overall health system

If one applies the methodology explained in the previous section, then the revised relationship between healthcare financing and benefit incidence is as shown in Figure 4 below. The benefit incidence in the graph below is the same as that calculated in the A&M paper. As the dataset was not available, no alternative figures were calculated for benefits.

Figure 4: Alternative comparison of total healthcare benefits (A&M calculations) and total healthcare financing incidence (Econex calculations)



Source: A&M and Econex calculations

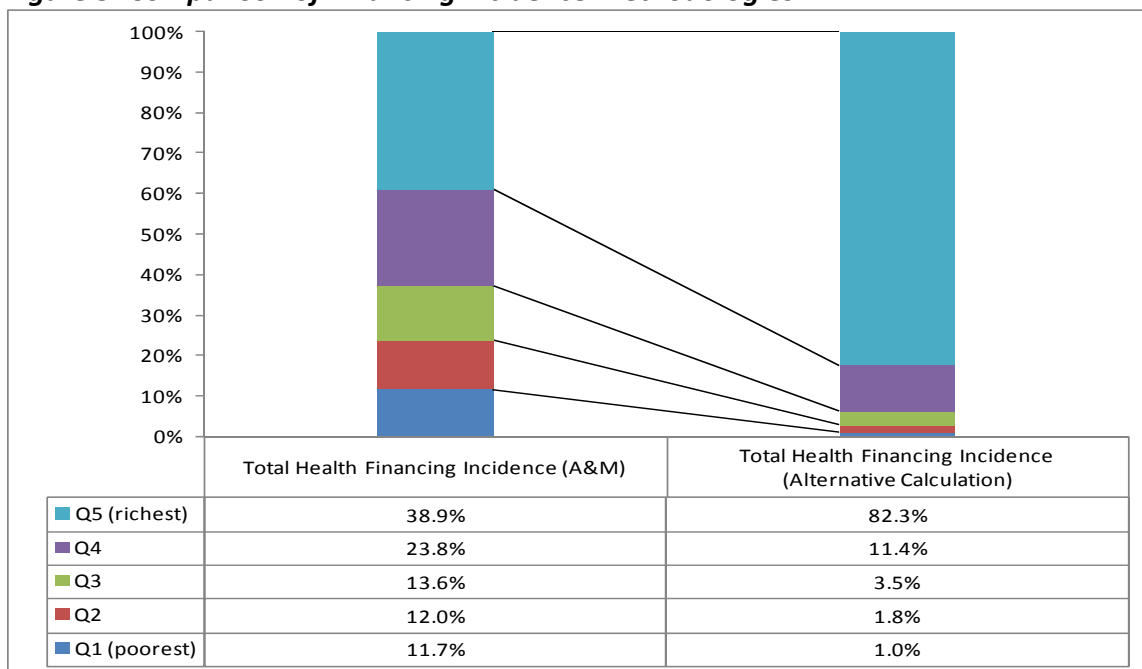
Recall that this result ignores the discussion of the re-spreading of corporate taxation discussed above, which is expected to exaggerate the distribution even further to the higher quintiles. The revised approach and application of the findings from A&M presented above suggest that the values contained in the final column of Table 2 represent the *true health financing incidence* in South Africa. These values are significantly skewed to the side of the richest quintile – this quintile contributes 82% of all health financing, while the bottom quintile contributes only 1%.

Combining the values obtained from Table 2 with the benefit incidence analysis of the A&M paper (see Figure 4) we find that **there is significant cross subsidisation in the total South African health system, from rich to poor**. This is in contrast with the conclusion reached in the A&M paper that: “...it could be argued that there is also a lack of income cross-subsidies, as the most ‘progressive’ and largest component of the health care financing system only benefits a small minority of the richest groups (i.e. the 14% of the population who are members of medical schemes.)” (A&M, p.20). The different findings illustrate the sensitivities of the results of such analyses to variations in assumptions and methodology.

The problems regarding the calculation of the financing incidence that were pointed out above have the effect of exaggerating the contribution of the bottom four income quintiles to aggregate health sector financing. This changes the main conclusion of the Ataguba and McIntyre (2009) article, i.e. that there is insufficient income cross subsidisation in the total South African health sector.

If one compares the two alternative approaches to calculating the financing incidence, then the two resulting scenarios are as presented in Figure 5 below.

Figure 5: Comparison of Financing Incidence Methodologies



Source: A&M and Econex calculations

Clearly, under an alternative scenario wherein the richest quintile of the population finances 82.3% (as opposed to the 38.9% calculated in the A&M paper), while receiving 36% of the healthcare benefits, there must be significant income cross-subsidisation in the South African health sector.

Conclusion A&M 5: The key source of inequity in the South African health system is the lack of adequate risk cross-subsidies

The final conclusion of the A&M paper is that the key source of inequity in South Africa’s health system is the lack of adequate risk cross-subsidies. This conclusion is based on figure 13 of the A&M paper where the authors show that the benefits from health care are not distributed according to the need for health care. Again, the comments above about the assessment of need would be applicable here. Although the authors of this chapter do not dispute the conclusion of the A&M paper in this regard *per se*, the degree of this problem needs to be assessed using a number of different methods and assumptions, which may point to a different extent of the problem. It was not possible to verify the exact figures presented in the A&M paper, due to the unavailability of the data.

2.4 Other Matters for Consideration:

Other items and assumptions raised in the A&M analysis which have a bearing on the results are outlined here, but not considered in detail. It is suggested that these items are considered in-depth in future work on financing and benefit incidence analysis.

a) Medical scheme contributions

A&M use the Income and Expenditure Survey (IES) data to derive contributions to medical schemes. While the stated intention in the paper is to include both employer and private contributions, only data from the IES is cited. The IES data significantly under-reports medical scheme contributions when compared with the Council for Medical Schemes annual report for 2006 (or even for 2005). This is most likely due to the absence of any significant employer contribution data in the IES information.

Since the number of beneficiaries inferred from the IES is relatively close to that reported in the CMS data, one can deduce that the largest component of the difference relates to missing contributions, not beneficiaries. Medical scheme contributions are roughly 65% higher than what can be inferred from the IES. Incorporating this higher level of medical scheme contributions into the financing incidence calculations would significantly increase the contributions to the health system for the upper quintiles and further improve the progressivity, and as a result the cross-subsidy in the health system.

b) Public sector benefit incidence

In the estimation of public sector benefit incidence, the information used to estimate the unit cost per inpatient and outpatient day in public hospitals was the recurrent expenditure for each hospital, provided by the National Treasury. This recurrent expenditure ignores capital expenditure with respect to these facilities and so underestimates the total costs of benefits used at public facilities. Since it is the lower quintiles which make more frequent use of public sector facilities, this has the effect of making the benefit incidence appear more regressive than is the case.

3. Conclusion

The paper published by A&M provides the first comprehensive glimpse at the state of equity in the South African health system. While the findings in the paper conclude 'we get what we pay for' these results are very sensitive to the assumptions and methods used as shown above. It is hoped that this chapter provides input into some reasonable revisions in basis and approach for the analysis in order to provide a more accurate reflection of the current healthcare landscape, which from the results shown in this chapter, appears to be progressive in the extreme with the upper quintiles paying far more than their share of benefits used.

CHAPTER 5

Cost Benchmarking Multidisciplinary Private Hospital Costs

Authored by Melanie Da Costa, Roly Buys and Adam Pyle

1. Introduction

The commencement of the regulatory process to determine reference price lists for all South African private healthcare providers began in July 2007 when the Department of Health (DoH) published regulations to decide on the process by which information is obtained to determine a National Health Reference Price List (NHRPL). Prior to July 2007, there was no specific law pertaining to the publication of reference price lists.

Although the NHRPL was intended to merely to serve as a reference price, the first draft of the National Health Amendment Bill, published in April 2008, seeks to elevate its importance. The Bill intends to amend the National Health Act via the inclusion of a new Chapter, 10A, which aims to create a framework that would enable healthcare providers and medical schemes to negotiate collectively and bargain individually on prices. It proposes that where parties agree on prices in respect of Prescribed Minimum Benefits (PMBs), no price higher than that agreed may be charged. Where parties are unable to reach agreement, the amendment stipulates that the NHRPL becomes the default position and no price may be charged in excess of the list price in respect of the PMBs. This Bill was submitted to Parliament in 2008.

Despite the Health Portfolio Committee not having dealt with the Bill, it dramatically elevated the importance of the reference price list and the argument may be advanced that the term “reference price” under the Bill would become an actual price or regulated maximum price. Under such a price regulated environment, the methodology for determining the costing benchmarking, annual escalations and returns on capital would need to be appropriate, consistent and rigorous to ensure the sustainability of affected healthcare providers.

The Hospital Association of South Africa (HASA) commissioned the services of Deloitte to complete a comprehensive cost benchmarking methodology and model for acute, multi-disciplinary hospitals. This costing exercise excluded psychiatric and rehabilitation hospitals as well as day facilities (from a licensing perspective these are registered as 57/58 hospitals).

To translate cost benchmarking into reference price lists, a return on investment needs to be applied. PricewaterhouseCoopers (PwC) was commissioned to provide an appropriate return methodology.

The purpose of this chapter is to review the inputs of a costing methodology for multidisciplinary hospitals.

2. Considerations for Benchmarking Costs

An appropriate costing methodology needs to consider all appropriate principles before it is used to determine costs. “Principles” refer to the basis on which the costs are calculated. The final model must take into account the explicit cost of providing such services.

The business model of a hospital is not the same as for a medical practitioner or medical specialist. A hospital’s business model is primarily based on the sale of units of time a patient spends in a ward or theatre, or the time spent using medical equipment. The cost benchmarking therefore needs to take cognisance of two elements:

- a. Operating costs consist of labour intensive nursing services and administration costs; and
- b. The investment in capital-intensive land building and medical equipment.

Deriving costs for hospital services is complicated by the various types of services offered, for example theatre time, equipment usage and a multitude of ward rates. Each of these services has different capital and infrastructure requirements, nursing and other operational expenses, as well as different billing modalities (some per minute, some per day, some per item used).

The complex delivery network within South Africa further complicates the evaluation of hospital costs.

Any costing methodology must consider the sensitivities with respect to the diverse delivery mechanisms such as the dynamics between hospital groups and independent hospitals, and appropriate geographic cost differences between urban and rural hospitals.

Recouping nursing costs introduces an additional unique feature given that:

- There are various qualification levels for nurses (registered nurses versus enrolled nurses and enrolled nurse assistants);
- The number of nurses required differs between a general ward, high care or intensive care; and
- The ratio of nurses to patients is driven by patient acuity.

The Deloitte methodology uses the replacement value for capital expenditure on land, buildings and equipment. This approach was informed by PwC’s 2008 research regarding return on investment which shows that within the telecoms and energy sectors in South Africa and energy sectors in New Zealand and Australia, asset values are derived from replacement values in the methodologies used for price regulation. It is important to consider the consequence of basing regulated prices on low historic net book values. An example in the South African context would be the electricity industry, where prices were set at unsustainably low levels, resulting in a lack of new investors in the electricity infrastructure, which in turn affects the ability to meet continued demand for growth.

There are two intricately linked elements to cost benchmarking. The first is the costing methodology itself and the second concerns the inflation methodology.

An appropriate base methodology coupled with inappropriate escalation/inflation methodology would gravely impact on sustainability. If cost benchmarking is then applied for the purpose of determining a reference pricing, then an appropriate return on assets should apply.

3. Deloitte and PWC: Principles for Developing a Benchmarking Methodology

3.1 Basis of Pricing:

- The reference price must reflect the actual operational costs in rendering health care services.
- The reference price list must be based on a return on investment that is sufficient to allow for capital replacement and expansion of hospital based services.

3.2 Structure of the Model:

- The structure of the model must reflect the capital-intensive nature of hospital businesses by using a representative private multidisciplinary hospital (ie. registered as 57/58 hospitals).
- Actual data relating to the events occurring within the hospitals has been used to populate the assumptions underlying the hospital model.

3.3 Occupancy Rates:

- The denominator for calculating the occupancy rate is 365 days per annum for wards (licensed beds) and 8 hours per day, 7 days per week for theatres. This takes into account offline time for theatres when post-operative cleaning and preparation for the next operation take place.
- The numerator incorporates the actual billed lengths of stay which are generally measured in half days or full days for wards and minutes for theatres.
- A cost benchmarking should be based on actual occupancy rates.

3.4 Medical Equipment:

- A register of standard general medical equipment required per bed (and generally accepted by the funding industry to be appropriate) plus the corresponding current replacement price per item, form the basis of the general medical equipment used within the wards and theatres.
- The principle relating to the charge for special medical equipment and the fact that it should be based on the utilisation of the equipment, cost per item and useful lifetime of the equipment holds true. A practical consideration however is that utilisation is constrained by the fact that not all surgeons operate

simultaneously across all disciplines as many share the use of a theatre. In theatres, different equipment is used for different disciplines and may therefore only be used when a particular operation is in session.

As a result, it is necessary to consider the “occupancy” of each piece of special medical equipment based on the available time regarding the use of each piece of equipment so that the utilisation is appropriate in this context.

3.5 Materials:

- No cost of consumables, be they ethicals or surgicals, previously defined as *non-chargeable* has been included in the ward and theatre tariffs but has rather been charged separately, as per the relevant regulation.
- The cost of administering the service has been factored into the hospital cost benchmarking. This includes the likes of pharmacist salaries and administration.
- The cost of medical gases has been included in the hospital costs, however, anaesthetic gases have been excluded as these are billed according to Single Exit Price regulations.

3.6 Buildings:

- The costing methodology has been based on the construction of a representative hospital, including the land. The majority of private hospitals in South Africa own the land and building as opposed to leasing.
- The representative hospital has been based on the average number of beds and theatres within the industry for multidisciplinary hospitals (ie. 57/58).

3.7 Return on Investment (ROI):

- Sustainable industries continue to attract investment from both existing and new competitors.
- PwC conducted an independent assessment of the methodology for the required ROI. This methodology is based on standard financial theory and holds true for all capital-intensive disciplines, including hospital builds.
- Equipment and working capital have also been included within the asset base on which the ROI is applied.

4. Inflation

As per Statistics South Africa’s (StatsSA) process used to determine inflation, one needs to define the reflective basket of goods and services for the hospital industry. This inflation “basket” has been escalated over time to reflect actual cost increases and has been periodically rebased.

Based on data from 2007, the reference price list was then projected to produce tariffs for 2008 and 2009. In these instances, Deloitte has reconciled the escalator to individual

accounting reports. The representative hospital was then constructed on the basis of the principles outlined above.

5. Cross-Subsidies

There is an inherent cross-subsidy in determining the average cost of a unit of ward, theatre or equipment (WTE) used as no two patients are alike. Hospital models across the globe have differing levels of cross-subsidy. There are tens of thousands, if not hundreds of thousands, of permutations in patient characteristics, yet billing is standardised either by the average ward, theatre and equipment type (otherwise known as fee-for-service) or by the average cost per day or average cost per procedure of average cost per diagnoses-related groupers.

There is no system in the world that can cater for pricing hospital services which is able to guarantee that there are no cross subsidies. The more granular the pricing components, the more cross-subsidies are removed. The more granular the pricing, the more complex the administration of billing becomes. Health markets have grappled with this trade-off and it is difficult to increase the granularity of billing without a disproportionate impact on administrative costs.

6. Impact of Historic National Health Reference Price Lists

Private hospitals and the now defunct Representative Association of Medical Schemes (RAMS) or current Board of Healthcare Funders (BHF) last benchmarked hospital costs within the context of setting reference price lists in the early 1990's, suffice it to say that the model agreed by the parties comprised a profit stream from both the "facility" (ie. ward, theatre and equipment used) and "pharmacy" components, (ie. drugs and medical devices.) Subsequently, private hospitals' billing models have changed dramatically with the advent of regulations relating to *Transparent Pricing Systems for Medicines and Scheduled Substances*⁴⁰ that resulted in most institutional (hospital) pharmacies being regarded as cost centres.

In the past few years, individual private hospitals have reviewed their business models around surgical products, with the majority of hospitals opting to consider surgical product divisions as cost centres.

The inappropriate approach to the historic NHRPL methodology was highlighted in an exercise conducted by Deloitte that examined the financial impact of applying the 2008 NHRPL on budgeted hospital expenses for that year. This simple exercise revealed the gravity of the situation. If multidisciplinary hospitals were to bill consistently at 2008 DoH NHRPL prices, the industry would make an average a loss of 15.1 cents for every Rand billed. This means that hospitals would lose money on every single patient admitted and would only survive for as long as they have cash to draw and/or the banks

⁴⁰ *Transparent Pricing Systems for Medicines and Scheduled Substance Regulations* effective 4 May 2004; gazetted on 11 November 2005

do not call in the loans. In such a situation, a significant proportion of private multidisciplinary hospitals would close down within months.

6. Conclusion

The historic NHRPL methodology, post 2004, is outdated and unsustainable as it is currently applied. The 2009 RPL publication is “ultra vires” as the DoH did not consider inputs from the hospital industry in determining the RPL methodology before publishing a reference price list for the year.

The hospital reference price list determined by Deloitte, and informed by PWC, has been based on an appropriate cost benchmarking methodology based on the representative hospital on the basis of the principles outlined above.

CHAPTER 6

Partnering Sectors

Authored by Advocate Kurt Worrall-Clare

“The challenge is significant but not insurmountable. There is a tremendous opportunity to leverage the private sector in ways to improve access and increase the financing of health care goods and services throughout Africa.”

**Lars. K. Thunell (Executive Vice President and CEO)
International Finance Corporation**

1. Preamble

While much has been said about the need for the public and private healthcare sectors to partner and pool resources, little, if any detail, tends to be forthcoming as to how this should be achieved. This chapter clarifies recommendations relating to partnerships between the private and public sectors and has been prepared within the context of the private hospital sector’s available resources from a human resource and available bed capacity. For this reason, we believe it important to request that this chapter not be read in isolation and that due consideration is given to those chapters in this document that deal with the issues of human resources, training and private sector bed capacity as a whole.

2. Introduction

Historically, there has never been a unified inter-sectoral response to improving healthcare services and access within South Africa. It is hoped that both the private and public healthcare sectors can recognise the benefit of shared partnerships and the value of one another’s role in the delivery of improved healthcare for all. Access can and should be improved within a sustained programme of social entrepreneurship which is respectful of both sectors and which does not further fragment services in either sector.

The question that remains is: how should this be done?

In 2008, the International Finance Corporation (IFC) published a paper titled *The Business of Health Care in Africa: Partnering with the Private Sector to Improve People’s Lives*. In this paper, reference was made to ‘complementary solutions’. It is submitted that this paper and its recommendations should ultimately constitute the strategy for South Africa, which would see both the private and public sectors working together on a synergised programme of action, founded on unified vision and operating within a sustainable investment model.

While some of the recommendations made in this paper were not universally supported⁴¹, the Hospital Association of South Africa (HASA) submits that there is sufficient goodwill between the respective sectors to capitalise on aspects of these recommendations and adapt these specifically in accordance with South Africa's needs, particularly when considering that the annual General Household Survey consistently shows that a significant number of South Africans access health care in the private sector in one way or another.

3. Taking Action

3.1 First Steps:

When considering the total healthcare needs of the country, one can easily be overwhelmed by the size and extent of this need. In addition, the capital and resources required to: (a) improve service delivery; (b) ensure advanced and updated technology; (c) supply adequate human and professional services, and (d) maintain and develop healthcare establishments at all levels, are considerable.

Despite these realities, there is currently immeasurable goodwill within both sectors. However, a universal understanding of healthcare delivery in South Africa needs to be significantly improved. Acknowledgment of this goodwill and the expertise inherent in each sector should form the basis of a platform for sincere engagement between sectors. Furthermore, every effort should be made to build upon this platform and establish a means by which each sector is leveraged to its best ability, to improve service delivery for all.

Both the private and public sectors should work towards a two-tiered plan of action, by (a) as far as possible, addressing the country's immediate health needs, and (b) developing long-term programmes of action that would ensure the systematic and synergised improvement of healthcare over a defined period of time.

3.2 Understanding what is meant by Partnerships:

In the past, terms such as public private partnerships (PPPs) and public private initiatives (PPIs) have been mooted as a means by which both sectors could collaborate on service delivery. While formal definitions exist regarding the actual representation of these terms in law and economics (see Treasury Guidelines), there is no universal understanding of this terminology between the two sectors. More specifically, there is often divergence of opinion as to the interpretation of key provisions within the aforementioned Treasury Guidelines.

With reference to international examples and experience, there are generally three standard types of public private partnerships:

⁴¹ Oxfam International. "Blind Optimism: Challenging the myths about private health care in poor countries."

- a) The state, through the allocation of tax revenue, provides sufficient capital for investment in a particular enterprise, which in turn is operated by the private sector under contract to the government;
- b) The private sector allocates finance through its respective operations for capital investment in a particular enterprise for the state and provides agreed services. This scenario is operated and managed by the private sector in terms of a contractual relationship with the state; and
- c) Outsourcing state surgical waiting lists to the private sector at negotiated rates and quality hurdles.

Within any of these models, the state allocates specific resources and even assets as part of the contractual relationship, albeit for a fixed term of operation. In addition, the state may consider subsidies and tax breaks as an incentive to encourage the private sector to participate in the provision of services to the state.

Although significant debate exists as to the effectiveness of each model, it is submitted that the most effective public private partnership is one that is designed to meet a specific need and is monitored effectively over time. The overarching principle by which success is measured is if the project provides 'value for money' to both parties. This said, internationally, there have been significant differences of opinion as to whether the criteria needed to achieve this goal are appropriate. Herein lays the crux of the debate.

Interestingly, within the international healthcare arena, a fourth variation of the abovementioned models has emerged. Known as PDPs (Project Development Partnerships), this model generally tends to be a not-for-profit initiative that has been designed to provide a specific product for a specified disease and which capitalises on private sector expertise that is either unavailable in the public sector or not insufficiently provided for.

Most public private partnerships are formal contractual relationships that have developed over time and while it is important to foster and encourage this type of relationship between sectors, it is by no means essential. Informal partnerships and working relationships may be equally beneficial between sectors, and as such, should not be under-stated as a potential short-term solution for improved healthcare service delivery within South Africa. Several examples of these informal working relationships have been outlined within the body of this chapter.

It is significant that several countries have formalised their goodwill and established specific inter-sectoral councils to address, encourage and advise on formal working relationships between sectors. For example, the National Council for Public Private Partnerships in the USA advocates and facilitates the formation of public private partnerships at federal, state and local levels, where appropriate. It also raises the awareness of governments and businesses regarding the means by which their co-operation can cost-effectively provide the public with quality goods, services and

facilities.⁴² The Canadian Council for Public Private Partnerships aims to foster innovative forms of co-operation between the public sector - at municipal, regional, provincial and federal levels - and the private sector, to the benefit of all Canadians.⁴³

A similar initiative in South Africa would be of immeasurable value to the country as a whole, although this would take some time to establish. In the interim, the public and private healthcare sectors could consider an informal working committee modelled on these two examples, specifically focused on establishing the parameters and means by which both sectors should engage on these important issues.

3.3 Addressing the Immediate Healthcare Needs of South Africa:

HASA initially recommended the immediate establishment of a Technical Task Team at the time of Barbara Hogan's appointment as Minister of Health. It was envisaged that this task team would co-ordinate sector experts and programmes. The Department of Health however, on its own initiative, established six working task teams, which in turn were modelled on the World Health Report. The six task teams comprised industry specialists and each team was instructed to evaluate the many aspects of healthcare delivery in South Africa. Some of the investigations dealt with human resources, legal and regulatory affairs, healthcare financing and numerous other important features of the healthcare sector.

These task teams held several workshops throughout the country and involved a variety of industry experts and participants both from the public and private sectors. Reports were subsequently submitted together with recommendations to the then Minister of Health, Barbara Hogan.

Modelled on these task teams, HASA recommends that a permanent task team be formed to ensure continued interaction between the private and public sectors. Such a team should be made up of technical experts representing both sectors. The function of this task team would be to advise the Minister of Health, Dr Pakishe Motsoaledi, and the Department of Health on an ad hoc basis about any matter pertaining to healthcare. In addition, this team would meet with the Minister on a regular basis to assess and make recommendations on the progress of programmes in operation.

This task team should have no executive powers or function and should merely make recommendations on matters pertaining to health. It should also represent both sectors at a competency level, meaning that appointments should be made in terms of competency, expertise and the ability to advise on technical matters pertaining to the healthcare sector.

⁴² <http://www.ncppp.org/aboutus/index.shtml>

⁴³ <http://www.pppcouncil.ca/aboutus.asp>

In terms of immediate healthcare needs, HASA believes the following areas should be prioritised:

3.3.1 Human resources and training

The country's requirements with regard to the number of health professionals - and specifically to specialists and nurse practitioners - is well documented and need not be repeated for the purposes of this chapter. However, current statistics and information on health practitioners need to be improved. To this end, an immediate and accurate study regarding the total number of health professionals in the country should be conducted, with emphasis placed on the following important information:

- a) Is the practitioner still practicing?
- b) If not, where is that practitioner and why is s/he not practising?
- c) In which sector does such a person operate (public/private/both)?
- d) What specialist qualification does the practitioner hold?
- e) In which location/district is the practitioner situated?

It has been difficult to collate this information as there is no entity/organisation that maintains an accurate geographic database of practising health professionals in the country, other than the HPCSA which maintains a register for the purposes of statutory registration and practise. While indicative of the total number of registered health professionals and specialities, this register does not distinguish between professionals working in the public or private sector, nor does it account for practitioners who work in both the sectors. Not only is this information essential for the development and planning of National Health Insurance (including education planning or possible importation of skills), it is also important for establishing the real - as opposed to perceived - need in terms of the numbers required of additional healthcare professionals and specialities.

The same is true for nursing statistics in that no distinction is made between those operating in the public or private sectors, although estimates can be deduced due to the fact that nurses are often formally employed. Unfortunately though, even this methodology has its limitations because an increasing number of nurses are either opting to maintain their registration while working overseas or for managed care and administration companies. Other might also work with an agency on a part or full time basis and are difficult to monitor.

Despite the absence of accurate and detailed information, it is generally understood that there is a real need for additional healthcare professionals in a variety of disciplines, as well as nurse practitioners.

The number of nurse practitioners trained in the private sector has increased dramatically since 1998 yet significant regulatory constraints remain, further inhibiting the sector's ability to produce certain qualifications and an appropriate number of nurses.

For this reason, HASA recommends that one of the first considerations for the Department of Health, if the aforementioned task team is established, would be to consider the appropriate regulatory regime in which health professionals and nurse practitioner training occurs, and whether or not improvements and/or changes are required to meet South Africa's healthcare needs.

3.3.2 Re-consider and adapt regulations to foster complementary solutions to training

Recognising the need for a positive regulatory environment, serious consideration should be given to the current regulatory regime which, in HASA's opinion, may inhibit sorely needed progress in training health professionals. Significant opportunities exist to adapt regulations which capitalise on the wealth of expertise currently housed in both sectors. To quote the IFC Report previously mentioned in this chapter... *'Opportunities exist to reform the regulations that inadvertently impede the development of the private health sector. The primary areas of focus should be streamlining bureaucratic processes that limit market entry, liberalising human resource regulations that perversely reduce the number of active health care workers, and reducing tariffs and other important barriers that impede access to or raise the cost of health supplies.'* (Page, viii of the Executive Summary).

Although there may be a substantial divergence of opinion regarding the role of the private healthcare sector in training health professionals and nurse practitioners, there can be no doubt about the need for increased numbers of both categories of professionals.

Training is therefore essential and should be a priority concern for both sectors.

Unfortunately, there are substantial regulatory impediments which inhibit the private sector's ability to respond to the country's training needs for healthcare professionals. HASA contests that these regulations do not seem consistent with the country's needs.

At present, private sector training establishments cannot train registered nurses and are restricted by Nursing Council criteria to limit training to a two-year bridging course. New training academies are subject to lengthy delays in registration and there is currently a moratorium in place for new applications.

Those training facilities that are recognised to train nurses by offering bridging and other courses are limited in terms of the numbers of learners they may train. Criteria such as bed occupancy are being used to restrict the number of learners. This, despite the fact that there is no universal method of establishing bed occupancy in either the public or private sector and that no consideration is given to the fluctuation of occupancy levels throughout the year. More concerning than this though is the private sector's inability to train healthcare professionals such as doctors, despite the current lack of capacity in recognised academic institutions across the country. These training gaps could be filled via formal partnerships with academic institutions, and as such, should be considered by the relevant authorities.

HASA recommends that the aforementioned moratorium be lifted immediately and that the regulations governing training should be revised to ensure that an appropriate regulatory regime should be instituted. This could be carried out as a joint initiative between the public and private sectors, utilising the resources and academic skills in both.

3.3.3 Training nurse practitioners

HASA is firmly committed to working with the Department of Health in developing and implementing its Draft Nursing Strategy Plan for South Africa. The Department's draft document, *A Strategic Framework for the Human Resources for Health Plan*, sets out the government's strategic framework for nurse training.

There are currently a number of parallel processes underway informing the debate regarding the implications of the 'Draft Charter of Nursing Practice'; a document first published on the SA Nursing Council's website in 2004. This document addresses the draft 'scopes of practice' and competency frameworks for the new categories of nurses as defined in the Nursing Act, No. 33 of 2005 and will influence:

- future nursing regulations;
- future nursing staffing norms; and
- the future nurse training curricula.

The private sector has been included in this process and is participating in the Implementation Planning Committee's project on task shifting and staffing norms which is being spearheaded by the Gauteng Department of Health. This steering committee is responsible for determining nursing norms which will form the basis of the staff competency framework for the various categories of nursing.

To date, the steering committee has hosted two 'Day in the Life' workshops in Gauteng in August and September 2008 respectively. This public-private collaboration reviewed current activities of the various nursing categories in addition to the potential task shifting in terms of the draft scopes of practice in circulation. The workshop focused only on the scope of practice for Registered Nurses (RNs) and Enrolled Nurses (EN's) in public acute hospitals. The data was collated and presented along with recommendations to Deputy Director General Dr Percy Mahlathi in January 2009. The steering committee has still to complete the primary healthcare analysis.

It is understood that the future 'scopes of practice' could see the introduction of a nursing staffing model which is less dependent on the professional nurse and greatly extends the scope of the staff nurse. In fact, due to the shortages of professional nurses, there has already been some task shifting (out of necessity) and this new model is set to provide legal certainty along with the publication of the proposed regulations in this regard.

Over the past few years there has been very little training in the public sector of enrolled nursing categories.

The new model strongly suggests that both the public and private sectors should focus on producing significant numbers of staff nurses in a shorter period of time than it takes to produce professional nurses. It is believed that this would enable appropriate and much improved healthcare delivery.

It is our view that the task shifting, as outlined in the new proposed scopes and competency frameworks, significantly reduces the percentage of professional nurses required in health teams. The current trend to train and bridge as many enrolled nurses as possible to become registered nurses therefore falls away and the bulk of enrolled nurses can be immediately and gainfully employed to deliver a broadened scope of care.

Apart from their own nursing needs, private hospitals are committed to assisting the Department of Health with additional training requirements should there be a need. Notwithstanding a potential change in the nurse training curricula over the next year or two (spearheaded by the SA Nursing Council), the private hospital sector believes that in order to relieve existing pressures on all services, additional EN's (in terms of the existing course) should be trained in both the public and private sectors. In their individual capacities, private hospital groups offer nurse training and run a two-year EN programme. At present, each group is revisiting its own strategy in line with the above developments.

Private hospitals believe that a potential 2 000 EN's could be trained by the private sector over a two-year period, after which they could be employed in the public sector if the practical nursing training component is conducted in public hospitals. This exercise would need to consider the existing training capacity in public and private training facilities and the demands and budgets of the public system, per region.

Once the hospitals and Department of Health reach an understanding, the intention is to submit a costing study to the Private Sector Task Team to secure funding for this programme as it is dependent on raising the necessary funds. Any adjustment to the curriculum could be made via a change in the curriculum intra period or 'filler' programme (informed by a gap analysis), post training.

The future nurse training strategy will need to cater not only for new nursing skills levels but also bridge the knowledge and competency gap that may be present in the existing EN cadre and in so doing, enable them to function effectively in the new staff nurse category.

There is a great opportunity for the public and private sectors to collaborate on update courses and continuous professional development in this regard.

3.3.4 Allowing the private sector to offer specialist courses

There are several initiatives within the public and private sectors designed to increase the number of RN's and EN's. Access to training for specialist nurses for intensive care, neonatal and operating theatre units, is however immediately available within private sector hospitals.

The private sector nursing education institutions are already training their own specialist nurses and is willing to make this training available to public sector hospitals. The theoretical component of this training is provided to a mixed group of public and private sector nurses and those nurses in the public sector are able to return to their units for their clinical practical. They are also free to circulate through some of the private units to gain exposure to modern technology. Joint initiatives such as these would bolster the number of specialised nurses, which, according to the SA Nursing Council, is decreasing annually.

3.3.5 Assisting with training healthcare professionals and registrars

Private health establishments could also assist the state with training healthcare professionals and registrars, in conjunction with those medical schools or universities that would consider partnering with the private sector on such an initiative.

3.3.6 Additional solutions

- **TB and HIV and AIDS management:** Private hospital groups that own primary and chronic healthcare facilities should be eligible for accreditation to participate both in the Direct Observation Treatment programme and comprehensive HIV and AIDS management.
- **Pharmacists, pharmacy assistants and medical students:** Pharmacists, pharmaceutical assistants and medical student numbers could be bolstered by the additional use of private sector hospitals for practical training purposes.
- **Management capacity:** private hospital sector groups could host public sector management in their respective hospital management training programs or junior management programmes.
- **Doctor (academic medicine)** education requires a joint public and private strategy.
- **Paramedic training** also requires a similar public and private strategy.

3.4 Improving Healthcare:

In 2008, HASA made a substantive presentation to the Portfolio Committee on Health. The presentation included numerous examples of how the public and private sector could consider working together on projects specifically designed to improve healthcare service delivery.

These include supporting and extending government funded Community Health Centres (CHCs) and the use of existing private sector primary care centres.

With regard to CHCs, HASA envisages that these centres would be staffed by multi-disciplinary teams comprising the required skills mix for effective and efficient service delivery. The priorities of these CHCs would be to:

- Be accessible as health needs arise;

- Offer comprehensive care for all common problems, including those detailed in the MDGs;
- Offer acute medical and obstetric care services;
- Support visiting specialist services; and
- Co-ordinate services when care or support from elsewhere is required; especially support for individuals needing to address the social determinants of health, eg. education, social support grants and housing.

CHCs would focus on providing services which would address the Millennium Development Goals. These include a list of 42 priority interventions and 70 treatment lines that have been compiled for developing countries. The intervention package addresses the disease burden related to tuberculosis, malaria, diseases of infancy and childhood, diseases and complications of motherhood, and HIV/AIDS. Each intervention includes medical and nursing care plus diagnostic procedures. A similar list of interventions and treatments, modified for local needs, would direct the provision of services at the CHC.

Existing private sector primary care centres provide a useful example of how the public and private sectors could work together to address broader healthcare needs. Prime Cure and Medicross run what is perhaps the largest private primary care network in South Africa with approximately 3 600 general practitioners. Between them, they operate 100 centres with 660 GPs and as a partner of the Government Employee Medical Schemes; the networks have doctors in almost every small town.

These doctor networks could be used to assist the public sector with the provision and rollout of ARVs and TB programmes such as Direct Observation Treatment (DOT); helping provincial and municipal authorities run existing primary care centres; and developing primary care PPPs and PPIs (as well as the provision of specific services to the public healthcare sector).

3.5 Improving Hospital Services:

It could also be of immense benefit for public and private healthcare establishments to 'twin' facilities within a negotiated memorandum of understanding. More specifically, private hospitals could twin with their public sector counterparts - according to geography and in terms of clinical services rendered to the public - to investigate and establish the required improvements within public health establishments.

Private sector expertise could be used to assist managers in the public hospitals to find solutions to their challenges. This could include making recommendations to the HOD, MEC (within specific and identified provinces) and the Minister of Health as to which immediate, medium- and long-term solutions should be considered to improve service delivery.

Preliminary undertakings in this regard could be directed at determining staff attitudes and providing input on appropriate information systems, environment, support services, clinical care, infection control, case management, theatre lists, and ward management.

4. Conclusion

While the points discussed within this chapter are mere suggestions at this stage, it is HASA's firm opinion that the private and public sectors could engage constructively in terms of establishing both the intent and detail regarding a working partnership.

Ultimately, it is the needs of the South African people that should be considered paramount and HASA and its members would like to re-affirm their commitment to participating in solutions that seek to improve healthcare service delivery for all.